COTTON

Volume LXXIX
Number Seven
Ten Cents a Copy

MAY, 1915

Published Monthly by
W. R. C. Smith Publishing Co.
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Table of Contents, page 247 Alphabetical Index to Advertisers, page 153 Classified Index to Advertisers, page 154

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AND
SHUTTLES
ARE MADE BY
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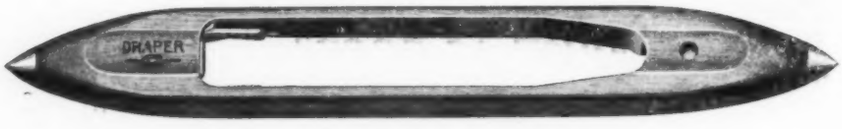

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188 South Forsyth Street ATLANTA GA.

COTTON

Published Monthly

Volume 79. MAY 1915. Number 7

L. L. ARNOLD, Editor

Publication Office, Dalton, Ga. Editorial and Advertising Departments, Grant Building, Atlanta, Ga.

Entered at Dalton, Ga., Postoffice as second-class matter. Subscription Rates: Domestic, $1.00 for Two Years; Foreign, $1.50 Per Year; Canada, $1.00 Per Year.

Complaints of failure to receive Cotton regularly or of errors of any nature relating to subscriptions should be promptly made to the Atlanta office.

Contributions to the columns of Cotton are solicited and paid for after publication. The names of contributors need not necessarily be used, but must accompany all manuscripts.

Orders for any change in advertisements must reach Atlanta previous to the 10th of the month preceding month of issue, otherwise publishers cannot be responsible for changes.

This Issue 5,000 Copies.

CONTENTS.

Editorial—

The Need for Business Solidarity 247
The Prospect for Export Trade 248

General—

A Factory Hold-up 250
Boston Convention of the National Association of Cotton Manufacturers 251
Memphis Convention of the American Cotton Mnufacturers Association 263

Mill Conditions and Market Reviews—

Southern Mill Situation 277
New England Mill Situation 278
Cotton Comment 280
The Knit Goods Market 281
The Yarn Market 281

Cotton Manufacturing—

The Sizing of Warp Yarns 282
Designs for Fancy Cotton Fabrics 284

Knitting Department—

Manufacture of Ladies' Hosiery 286

Dyeing, Bleaching and Finishing

The Present Dyestuff Situation 290
Discharges on Indigo 292
Some Causes for Bleaching Stains 293

Practical Problems Discussed by Cotton's Readers

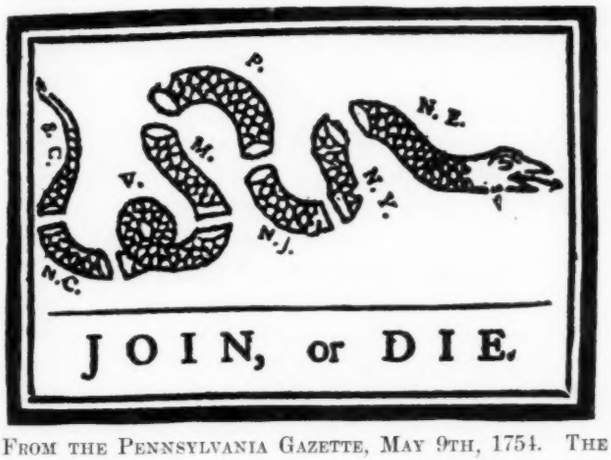
Answers to Spinning Questions 294
Questions on Slasher Blankets 294
About the Rolling Stone 295
Making Hosiery Yarns 295
Timing on the Comber 296
Cleaning and Oiling Combers 298
Wishes Increased Loom Production 298
A Question of Ethics 298

Notes About Men You Know 300
New Machinery and Trade Notes 302
Book Reviews 310
Knitting Mill News 310
Knitting Supplement which contains the Report of the Eleventh Annual Convention and Exhibition of the National Association of Hosiery and Underwear Manufacturers 311

THE NEED FOR BUSNIESS SOLIDARITY.

Albert Green Duncan, president of the National Association of Cotton Manufacturers, injected a vein of serious thought into the gaiety of the occasion, when, in a one-minute talk to the American Cotton Manufacturers at the Memphis Country Club banquet he indicated the absolute necessity for united thought and action. Manufacturers must get together, or be put out of business, he declared, and in this cooperation there should be no South, no West, no North, but a unity of thought and action toward one vital and definite end,—the preservation of the business interests of the country.

This thought brings to mind a set of circumstances or conditions in the early history of the colonies, and the remedy which was then not only urged but adopted, that is so apropos it should appeal to every cotton manufacturer wherever located. On December 24th, 1753, the governor of the New York Colony, on the recommendation of the Lords of Trade, issued a call for a meeting of the British Colonies in America, to be held in Albany on June 14th,



FROM THE PENNSYLVANIA GAZETTE, MAY 9TH, 1754. THE FIRST CARTOON TO APPEAR IN AN AMERICAN NEWSPAPER.

1754. It seemed that there was some possibility of war with the French and methods of defense was to be discussed. On May 9th, 1754, Benjamin Franklin, who was then editing the Pennsylvania Gazette and who was also one of the three commissioners selected to attend the Albany Conference from Pennsylvania, published in his paper an appeal for "our common defense and security." At the same time in order to strengthen his words, he printed a cartoon, the first to appear in an American newspaper. This cartoon, which is reproduced herewith, represented a snake cut into eight parts: the head was New England and the other parts stood for New York, New Jersey, Pennsylvania, Maryland, Virginia, North Carolina and South Carolina. Its caption was "Join or die."

This cartoon had the desired effect as history records.

It was again used eleven years later in the Constitutional Courant, on September 21st, 1765, in connection with the British Stamp Act, which was due to go into effect in November of that year. During the years that have since passed, the country, "our country," has greatly increased in size. The snake, if reconstructed, would have many additional sections, but the thought, the idea, emphasizes and drives home the words of Albert Green Duncan in Nineteen Hundred and Fifteen with the same strength and the same force, if with different intent, that it did the words of Benjamin Franklin one hundred and sixty-one years ago.

Probably the most serious obstacle confronting all manufacturers at the present time is the injurious legislation that is being forced upon them, not only locally but nationally. The rural control of Congress so ably referred to by James A. Emery in a recent address before the Newark, New Jersey, manufacturers association, illustrates in a national way what is happening in the majority of state legislatures throughout the whole country. Locally and nationally it is a serious condition that *must* be met and overcome. It cannot be done individually, but it does require the individual efforts of every manufacturer, great and small, to give to the movement that unity of thought and purpose, that strength and solidarity of mass, so strongly urged by President Duncan, so forcefully stressed by President Hickman, and so constantly advised by Counsel Emery.

This number of COTTON will reach every cotton manufacturer of record in the United States. Most of these are regular readers, but to those who are not, as well as to those who are, we wish to emphasize this great thought so admirably expressed by President Albert Greene Duncan in Memphis:

Let there be no South, no West, no North, but a unity of thought and action toward one vital and definite end,—the preservation of the business interests of our country.

TEXTILE MACHINERY EXHIBIT.

The next national exposition of textile machinery will again take place in Boston. It will be staged in Mechanics Building in April, 1916. This was unanimously voted at the recent annual meeting of the Textile Exhibitors Association in Boston.

Chester I. Campbell, secretary of the association and general manager of the exposition, was authorized to make arrangements for the next exhibition. The members of the board of directors were very enthusiastic over the idea of another "show", declaring that the last exhibition was such a big business getter that they have had repeated inquiries as to when the next one would be put on.

Because of the peculiar conditions that now exist the board of directors feel sanguine that insofar as the manufacturers of cotton, woolen and knit goods machinery are concerned it will bring forth a still greater number of exhibits than the 1914 show which was the largest of its kind ever held in the world. Information regarding the exposition can be obtained from Mr. Campbell, by addressing him at 5 Park Square, Boston.

THE PROSPECT FOR EXPORT TRADE.

COTTON has received a number of inquiries as to the export trade in textiles, the effect of the war upon this trade, and the prospect for the future. Practically all admit that the expected result of "war orders" has proven unsatisfactory and disappointing. The following extracts from one of these letters will, perhaps, make more clear the feeling among this class of correspondents:

"Quite a large amount of printer's ink has been used in explaining the golden opportunities which the United States has, at present, to extend her export trade, and the large volume of business to be derived through furnishing the European nations with goods for war requirements.

"I am connected with a concern which had a large export trade before the war, and which was also favored with orders for some commodities, at the beginning of the war. As recently the incoming orders have been falling off from such sources, we have communicated with our various correspondents and European customers, and have found that the prospects for any export business, are at present very discouraging. Parties in France write us that they have increased their facilities, and are not in need of any foreign goods. Parties in England write us that our prices and qualities were satisfactory, but owing to the high freight rates they are not able to buy our goods, and have increased their own plants. A New York concern, through which we do a large business with Russia, writes us that a member of their firm, is at present in Petrograd to secure orders, where he finds that Russia can buy to better advantage from Japan. Conditions in the South American trade are too well known to need any comment. In my opinion, and judging from the various reports, the prospects for export trade for the United States are poorer today than ever before. As the British and French have control of the vessels plying between the United States and other ports, I cannot see how conditions will improve unless we are able to secure better shipping facilities. No doubt you have received information from parties engaged in the export trade, and I would thank you to let me know if they have met with any better success."

Perhaps no persons are in a position to better appreciate the total amount of twaddle that has been printed since the beginning of this war on the subject of export trade than the editors of the various trade journals to whose lot falls the somewhat questionable pleasure of looking over this "dope" in the hope of sorting the grain from the chaff. Not that we would in any measure belittle the subject, but its treatment has sometimes verged toward Munchausen-like exaggeration. Because we believe that no person is in a position to intelligently discuss this subject under the present peculiarly trying conditions unless he is actually dealing with these applied conditions in his daily business life, we referred the questions to HOWARD AYRES, Secretary of the Cotton Goods Export Association of New York, who is considered one of the best informed men in the trade on the subject of textile exports. Mr. Ayres writes us as follows:

"With a strong desire to give you as much information as possible, I find difficult your question, 'What has been the recent trend of export trade in textiles, and what the near prospect?' Perhaps no commercial interest so peculiarly tempts one to the expression of thought colored by

the wish behind it as the export trade; indeed statements about it are read in the spirit of partiality, and accepted or rejected as they may coincide with the desire of the reader not for facts so much as for what he would like to be told.

"The export trade, where it amounts to anything, cannot be measured by short periods. The conditions in which it is conducted, forward engagement of merchandise to be made, transportation, the advance of purchase money and collection of proceeds, all go to make up prolonged operations, of which the beginning and the end are overlapped by previous and new transactions, and by market conditions not necessarily related to what may be coming to public notice at any one time. Nevertheless, at a time of such violent dislocation as the present, it is important to know how our trade is being affected, and a study of the situation takes on new interest.

"Cotton goods made in the United States have not participated to any great extent, except duck, in the unusual orders placed here for munitions and supplies of war. On the contrary, the manufacturers have suffered from the effects of the war upon raw material and the markets consuming the finished product. It is not apparent that much has been accomplished in gaining new markets or capturing orders usually taken by the nations at war, except perhaps in one direction. Had trade conditions been normal in the international markets, and the low cost of raw material, and consequently of goods, been a normal reaction, there would have been an increased demand because of the low prices. Such cotton cloth as we export goes to people of small purchasing power, among whom high prices restrict consumption and low prices increase it. Unfortunately other conditions have existed, and have been so far compelling as to offset that favorable circumstance.

"Our principal foreign markets for cotton cloth, in the order of volume taken during 1912 to 1914, values being too fluctuating to be a safe comparison, are as follows, with exports to December 31, *in yards*:

	1914	1913	1912
Philippine Islands	78,097,417	91,686,489	85,019,517
West Indies & Cuba	65,742,849	73,528,606	79,744,194
China & Hong Kong	39,706,530	118,258,030	69,766,738
Central America & Mex.	41,141,518	36,276,583	45,417,763
South America	33,861,250	46,012,854	58,697,396
Canada	20,699,436	24,296,721	23,756,978
India	13,003,918	12,052,678	17,597,229
Red Sea	9,445,902	27,783,615	34,328,035
Oceania	9,045,287	11,825,624	17,091,963

An examination of the figures for the last half of 1914 and for January, 1915, the latest published, does not enlighten us on your question, as may be seen from the following statement of exports:

	1914	1915
	July 1 to Dec. 31	January
Philippine Islands	37,726,309	17,758,246
West Indies and Cuba	34,626,711	5,947,868
Central America and Mexico	19,152,728	2,422,453
South America	12,971,927	2,652,921
Canada	9,522,985	1,770,863
China and Hong Kong	6,795,155	1,578,331
Red Sea	4,884,250	4,769,450
India	4,326,556	362,462
Oceania	2,974,536	157,906
Other Countries	9,129,094	5,252,417

For the six months period, when the effect of the war might be expected to appear, no feature challenges attention, except the smaller shipments to China, and larger for markets grouped in other countries, the latter due, if one may hazard a guess, to duck sent to England and France. In January the large shipment to the Philippine Islands is doubtless fortuitous because of freights or other factors. The Red Sea looms up as it is likely to do in later months.

"Of these markets, Canada is commercially very much like our home trade. The Philippine trade is somewhat artificial because our goods are admitted free of duty against a tariff on goods of other origin. South America has felt severely the indirect effects of war, financially and commercially, and not only has there been trade depression there but we are not offhand able to extend the credit accommodation which seems necessary for any expansion of our exports. India is a purchaser of a single variety only of American cloth, but the growth in the demand for that during recent years is gratifying. Two markets appear to present features of interest, the Red Sea and China.

"For the Red Sea, with Aden as a distributing center, there has been an increasing business done, not yet shown in any statistical returns of actual shipments. Later months will record it in official figures. It is not at all likely that there has been any change in the customs of the people to increase consumption, and what has been gained for our mills there is the most conspicuous instance in the effect of the war upon our commerce in cotton goods. A considerable part of the demand from the Red Sea markets has been supplied by European countries at war or whose commercial operations are interfered with by war, and we are getting orders that would normally go elsewhere. Some of them doubtless are brought out by the low price at which goods could be bought, in striking contrast to those of recent years, a condition quickly recognized by Oriental traders of whatever degree when able to buy.

"In normal conditions within that country China would have been a large buyer on such a market as has existed here for several months, and that the keen Chinese traders have not bought is more eloquent of their position than anything that could be said. It would be a long story of intricate details to tell of what has brought this about. It will suffice here to attribute it to three principal causes. First, China is a country using silver as a medium of exchange, and has added to this evil the greater one of debasement of the currency of the common people and the issue of unsecured paper notes. Second, China has suffered from the indirect effects of the war, curtailing markets for exports and interfering with bank credits and exchanges. Third, China has been the victim of successive political shocks, within and without, of which the latest, the menacing attitude of Japan, is one of the most disturbing. Potentially the greatest market for such cotton goods as can advantageously be made here, whose people are industrious and thrifty, yet timid and helpless, who must for many years wear clothes made from cotton, and who are now compelled to take the cheapest material obtainable and largely to go without, China is a commercial problem of fascinating possibilities.

"What the prospect is through the period of readjustment to come during what remains of active warfare and still more after it, who can tell? If we are to have a permanent increase in our export trade it can come only because we can supply at competing prices what the foreign markets

want. There is no sentiment in foreign trade, no enduring animosities can be depended upon, there must be the economic reason of successful competition on a purely commercial basis. But no one who has seen the development of our export trade in cotton goods, and had any part in it, can doubt the ability of our manufacturers and merchants to increase it."

A FACTORY HOLD-UP.

BY A. M. OLIVER.

No guns were introduced in this "hold-up" and nobody was hurt physically. It was day-light "hold-up" and the offenders were caught in their own trap.

The expression "hold-up" is common among efficiency engineers and is applied to jobs on which a time study has been taken and a task set which the operatives fail to accomplish. The particular case which I have in mind occured in large print works in which I was working on scientific management.

There were 16 hand folders working on madras and ginghams each man folding 375 pieces in 9 hours. I observed the work done by a number of the men and noticed that some finished the 375 pieces in 8 hours, some in 8½ hours and some it took a little longer. I took time studies on more than 3,000 pieces and came to the conclusion that the men were "stalling". I observed that invariably, the operative on whom I was taking the time studies, would need every minute of the 9 hours to complete the 375 pieces. I also observed that just as soon as I had left that operative and began with another, that the first operative would finish his 375 pieces anywhere from 20 minutes to one hour early. It made no difference what time an operative finished the 375 pieces he would do no more. That was the maximum amount of work for 9 hours. The operatives had set this maximum themselves. My time studies showed that it was not asking too much to ask each folder to fold 475 pieces in 9 hours, so the task was set on that basis. It was explained to the operatives what was expected of them and what they could earn. We also endeavored to prove to them that 475 pieces was not their maximum output and that it was possible to do many more pieces if the proper tactics were employed. The explanation finished, the new rate was to take affect the following Monday.

Every folder was on hand bright and early Monday morning and it looked as though every thing was going to go along smoothly, although we rather expected that some comments would be made. One man, the "lawyer" of the outfit, immediately picked up his belongings and walked out. He laughed at the others because they stayed. I might say right here that six weeks later I saw that same man peddling circulars advertising Lydia Pinkham's Compound. That seemed to be the best he could land. The other men went to their respective benches and at the end of the day had folded 375 pieces, as usual. Not a man did over 375 pieces. The second, third, fourth and fifth day proved no better. The fact that each man proved himself equal to exactly 375 pieces in 9 hours and the fact that not one man was able to do one more piece was proof that it was a "hold-up.' To make the situation more dense the men had no complaint to offer, even though they were losing money. The men were asked to work overtime and refused, to a man. Heretofore they were anxious to get overtime work because it paid them time and one-half.

On the tenth day the room was in horrible shape. The work was coming faster than ever due to a rush order that had gone into process. The men rejoiced to see the goods pile up and whispered among themselves that we were beaten.

On the 11th day we decided that we would go to the folders and ask them what the trouble was. Each man gave the same reason for his grievance. One and all said they were not able to do more than 375 pieces in 9 hours. We informed them that the task would positively remain the way it had been set. It was a "hold-up". They were determined to beat us and we were likewise determined that the rate and task should remain as set.

It was deemed advisable to consult the selling house with the view of finding out whether the goods could not be wound on a pulp board and shipped in that form. The selling house agreed that it was a good plan and we immediately got busy. Truck load after truck load was wound and the folders got no opportunity to fold even 375 pieces. Three men were transferred to other jobs because of lack of work.

On the 16th day a committee was appointed by the folders to call on the superintendent. He cheerfully entertained them but advised them that the task should remain. They agreed that they could do more work and would do more if he would but allow them to have the work. The superintendent agreed and on the 19th day every person in the room folded 475 pieces. Within ten days from that time four of the men were folding 525 pieces every day.

It was framed before it was started as every "hold-up" is framed. The thing had been talked over and each man had agreed to do exactly the same number of pieces in nine hours.

The man who left with a sneer did both himself and the others an injustice but he hurt himself more than the others. He fixed himself so he couldn't get a job and rather than admit he was wrong he would peddle bills advertising a patent medicine.

An effort to extend British and French trade in Latin America by means of a tour of commercial men to South America is about to be made under the direction of the Kelly Trading Co. (Ltd.) of London. Fifty representative French merchants and traders and about one hundred British business men will make the tour in a French steamer. The vessel, which will probably be called the Argonaut, will carry a sample showroom.

The purpose of the tour is to enable British and French merchants to study on the spot the possibilities of trade and get into personal contact with South American importers and improve commercial intercourse between South America and Great Britain and France. The help of chambers of commerce and municipalities in South America will be enlisted and public meetings and receptions arranged. Samples of British and French manufactures will be on view and orders will be taken when required. Efforts will be made to induce British and French manufacturers to translate catalogs into the vernacular—a practice which the Germans have adopted with much success.

Boston Convention of the National Association of Cotton Manufacturers.

About 300 members and guests congregated at the Copley Plaza hotel, Boston, Mass., for the 98th meeting of the National Association of Cotton Manufacturers. Among the southern men present were President Scott Maxwell and Secretary and Treasurer Bryant, of the American Association and T. H. Rennie of Pell City, Ala. Great interest was manifested in the papers presented at the various sessions, many of which were exceedingly instructive.

First Session.

The first session was called to order promptly and after taking up in order the routine business scheduled, the association medal committee reported that the medal this year had been awarded to Frederick Jerome Hoxie, for his work on the prevention of decay in timber used in mill construction. Following this announcement, PRESIDENT ALBERT GREENE DUNCAN delivered the

President's Address

which follows in full:

Seven months ago our Association met at the opening of a great war. The shock of a world upheaval, unexpected as it was vast, was felt by all of us. Each was vainly searching the future to determine what it held for the business in which he was involved. Cotton manufacturers were harder hit than almost any other industry. Confronted with an immediate and unprecedented depreciation in our stocks of raw material and finished products, we were forced to bear the full brunt of the disorganization which for a time involved the whole financial and industrial world.

It is cause for congratulation that we have lived through the last few months. That our industry has continued solvent, and that we have seen a gradual bettering of trade from the utter prostration of last fall is a record of which we may be heartily proud. We are however only beginning an improvement which we hope will be real and substantial. Our industry is so related to every other in this country that general causes which are operating against business as a whole effect us vitally.

It is disheartening to call attention at any great length to the condition of general business. The best that can be said, is that it is existing, but it is not good. New enterprises have stopped, except where abandonment would entail severe loss. None of the development which in prosperous times this country expects as a part of its industrial life has been in evidence.

This applies not only to all the projects which as a largely undeveloped country we have still before us, but it is also seen in the lack of that normal expansion which every enterprise has counted on year by year as a natural sequence of business success. As a result, labor is unemployed to an extent hardly known in this generation, and by this curtailment of the nation's purchasing power a retrenchment has been forced, whose cause must lie deeper than any disasters which the war could bring upon us.

No spirit of pessimism prompts these statements. Pessimism has no place before an audience of American cotton manufacturers or American business men of any calling. The key note of the American character has been enthusiasm, progressiveness and optimism, and these sentiments are as present in American life as ever, although temporarily obscured by the discouragements and uncertainties of the last few years.

It behooves us to study these questions, not in a spirit of pessimism, but of true citizenship. We must look to the industrial, political and social welfare of our country. We must find causes, suggest remedies, and apply to our relations with each other and to our government the same spirit of research and invention which has made our country what it is today.

The reason generally assigned for the present business depression, and especially by those intrusted with the charge of our government, is the war, with its disarrangement of the machinery for the free exchange of commodities and payments among the nations of the world. This explanation is not sufficient. We cannot so easily shift the burden onto alien shoulders and thereby excuse it as not of our own making. The halting attitude of business is the natural sequence of our recent national policies and is caused by the fear of the legislative and governmental campaign against business.

Two years and a half ago the American people voted for a change in their national administration and elected a party on a program of anti-business legislation. The policy of this party has since been called the "freeing of business from its shackles," but in spite of this well-sounding phrase, the business man who has undergone the freeing process finds himself more hampered and harassed than at any previous time in our history.

The most serious attack of the present legislative campaign against business was the abandonment of the principle of protection in the revision of the tariff. This action affected directly the product of every American mill, farm or factory. Many manufacturers without regard to section or party warned our legislators at Washington that so radical a change in the tariff policy of the government as that contemplated could only result in disaster.

The terriffic increase in the import of foreign goods during the first nine months that our present tariff was in operation, show that these fears were not ill-founded. The extent of the disaster that would have overtaken our industries had the operation of the new tariff continued until the present day, no man can estimate. The significant fact is that the favorable trade balance which this country had always enjoyed under a protective tariff, immediately declined coincidentally with the introduction of the new schedules and continued to fall until by April, 1914, the balance was against us for the first time in many years. For five consecutive months this unfavorable balance increased and gold began to leave the country, until by causes outside of any government control the tariff was rendered inocuous.

The war, in a financial sense, was a blessing in disguise. The third month after its inception showed again a trade balance in our favor which has continually increased until, during the last three months, it has been greater than ever before, and since the first of January, gold has begun to

return to us. We are exporting today over a hundred million dollars a month more than we import, and with a continuance of the present conditions this country will attain within a very short time a financial independence in the money markets of the world which it never before enjoyed. While the disaster to our industries by the tariff has been providentially suspended for a time, the fear of a renewal of imports is present in the minds of us all. The general stagnation of trade and commerce, however, cannot be charged to the tariff alone, for that at the moment is inoperative in effect though present as a menace.

We must look deeper to answer the question. If we take a broad view of the last few years, we see that the same antagonisms to railroads and other forms of business have been growing in the minds of the public that have reached their full expression in the present attitude of our government towards business.

We know that the supply of capital for the formation of new enterprises or the enlargement of old has been supplied by investors in ever diminishing quantities and at increasing

PRESIDENT ALBERT GREENE DUNCAN.

rates of interest. We have seen many of our railroads and large business corporations forced to abandon the well-tried methods of financing of the past. Instead of selling long-term obligations at low rates of interest, which were readily taken by the public as the best medium for their savings, temporary borrowings financed at a high rate of interest have become the order of the day. In other words, the short time note, lacking the elements of stability and low cost, has been in many cases the only security which companies of undoubted credit have been able to negotiate. The fear of the legislative crusade against business is the underlying cause for this change in the attitude of investors and for the decline of our national business progress and expansion.

Instances of this crusade will naturally occur to all. The sensational attacks on corporations in general surely indicate that there has come into the minds of many of our citizens a belief that marked business success is prima facie evidence of a crime. The individual or corporation which has raised itself above its fellows, even by its adequacy to minister to some public need, has been time and again placed in the pillory of public opinion and forced to prove its honesty and integrity. The fact that after many recent prosecutions by the government, the courts have decided that no unlawful acts were committed, yet the undermining of public confidence in the integrity and honesty of our business system has been accomplished without the justification that any wrong has been righted.

The terrible indictment in which Carlyle summarizes the career of Voltaire, may well be applied to many zealous prosecutors of their fellow citizens. "It is true that you have swung the torch for destroying old abuses, but where, O where, do you wield the hammer for building new reforms."

No one will deny that there exists faults in business life, but there is no justification for the propaganda which has denounced all business as essentially corrupt and vicious. Few realize how difficult it is to make money. The earnings of our corporations may seem vast in amount to those who fail to understand percentages. Many do not realize that the gains of a favorable year sometimes barely offset losses previously made, nor do they stop to remember that in the history of almost all of our present successful business enterprises, the original capital invested was often lost or reduced many times before success finally came.

Corrective legislation is necessary for the excrescences that may grow on our business, as it is for the crimes and misdemeanors which arise in our social life, but corrective legislation is very different from the restrictive and punitive laws which now burden our statute books. Legislation, to be of permanent value, must be constructive. It should aid and guide in increasing our resources, lowering the cost of our food supply and our manufacturing processes, expanding our markets at home and abroad, if we, as a nation, are to hold our place in the world of commerce. Legislation should not restrict enterprise and progressiveness, nor dwarf initiative, which has hitherto been the watchword of our success.

Commission government seems to be the order of the day. It may well be called paternalistic or socialistic, and in its theory and its application it is absolutely at variance with the idea of a republic whose basic principles have always been equal opportunity for all and unlimited possibility of reward to any man who showed himself able to rise above the level of his fellows. Government by commission is of necessity wasteful because inefficient.

A commission, neither in conception nor in practice, can r se higher than the men who compose it. The great constructive minds of business do not devote themselves to the work of commissions whose aim is to hamper and restrict rather than upbuild and push forward. Men who are really competent to dominate the business interests of this country will never be satisfied with a negative policy.

The most notable example of paternalism in the last few years has been the commission form of management which the government has applied to railroads. The Interstate Commerce Commission in its early days, acting as an advisory body, corrected many abuses and accomplished untold good, not only to our citizens but to the railroads themselves. But when, in response to a public demand, it was forced to assume the management without the responsibility for the success of our railroads, its work has proven disastrous rather than beneficial. Is the credit of our great

railroad systems better,—have needed improvements been carried out,—or is the average passenger or shipper better served at lower rates today,—than they were before the government assumed the policy of management without responsibility?

The last session of Congreee passed a law bringing all forms of corporate business in this country under the control of a Federal Trade Commission, with wider and more varied powers than have ever been granted even to the Interstate Commerce Commission, notwithstanding that the business to be put under its control is of a private and not a semi-public character. In the closing days of Congress, the men were appointed who will assume the herculean task of determining the rules and regulations under which business must operate and the carrying these mandates into effect. Is it any wonder, in view of the experience of our railroads with commission government, that business today is halting, unaware what the future may bring forth? Neither the law under which the Federal Trade Commission is to operate is so clear in its terms nor are the men who compose this body so pre-eminent in training or experience as to inspire any business man with great confidence in the future of the enterprise which he conducts.

Business will have to face many new problems in the next few years. The contest in Europe is so gigantic and its consequences so far-reaching that no one is daring enough to predict the outcome. America is at peace, and has so far profited rather than suffered by the struggle. Six months ago the prediction was freely made that this country would undergo financial disarrangement, ruinous rates of interest and complete trade paralysis. On the contrary, as far as money is concerned, the very opposite has happened. Both in Europe and America money is unusually easy. We find at home gradually advancing prices for securities and a demand for many commodities almost without precedent.

Viewed superficially this would seem to justify in our minds a thorough optimism, and many factors are operating today that will shortly place this country in a financial position it has never enjoyed before. Our trade balance has turned, until on April 1st, it has reached nearly three-fourths of a billion in our favor. During the year 1915, our exports promise to exceed our imports by a billion dollars, a sum at least four hundred millions larger than the record of any previous year; and further, many offsets which have hitherto been to the disadvantage of our trade balance will not be operative. European travel will not take out of this country the sum of at least $250,000,000, as has happened annually for some time. Although never appearing in the tabulated statements of our imports and exports, this has been a vital factor affecting our financial position. Such a favorable trade balance will go far towards liquidating the debt we have owed to Europe for their investments in our railroads and other enterprises.

With what are foreign nations to meet in the next year the balance in our favor? They will not for their own preservation send us their gold. Two methods remain. They must sell back to us our securities, at a price much below the original investment, or speaking plainly, we shall exchange wheat at $1.50 a bushel for gilt edged American securities at about 90 cents on the dollar. The other method is for us to invest in European war loans or to assume the financing of nations hitherto dependent upon Europe for their supply of capital.

It is unnecessary to enlarge on the effect of these settlements on our financial position in the world. All over Europe today, financial expansion is the law of self preservation. To use a homely expression, this war is being fought by the activities of the printing press, just as our Civil War was fought by the issue of greenbacks. At the close of the war, we shall be the one nation that has gained in resources rather than lost, for over-borrowing must force in nations, as in individuals, retrenchments and economy, and Europe's expansion of currency and note issues must be redeemed by the savings and sacrifices of her people.

With the announcement of peace, unlimited opportunities seem to open for America. We shall as a natural sequence of paying our debts be able to supply the capital and the materials for the inevitable process of upbuilding that the nations of Europe must undergo. American initiative and resources will be ready for the task, and the future holds a period of wonderful prosperity for our country, except that the same disastrous causes that were in evidence last spring may again be operative with the increased danger that our markets may be flooded with the surplus of Europe's manufactures whose owners must have cash at any sacrifice. We must be prepared to withstand this dumping and not allow our industries to be sacrificed by our competitors' necessity.

We stand on the threshold of a new era. The propaganda started by political self-seekers for the accomplishment of their own ends has borne fruit. They have sown the wind,—let us hope we may not reap the whirlwind. By the operation of natural causes, by the fortunate turning to our advantage of a world calamity we had every reason to fear, the immediate outlook for business is encouraging if it were not for the deeper, underlying hindrances which our national government has placed in our path. We are shipping our foodstuffs, our clothing, our manufactures of iron and steel, in unprecedented quantities, owing to disorganized trade conditions among the older nations of the earth. We are financially in a stronger position than we have ever been. We have every reason to hope that the trade of many nations of the world will leave their hands, never to return, and will come to us.

American industry and initiative are amply equipped to take advantage of these changed world conditions. Are we then to see this golden opportunity slip from our hands because of the handicap of governmental regulation? Should we not devote our energies, both legislative and social, to the expansion, rather than the contraction of American trade? Business must stand together,—not in illegal combinations, not in the stifling of competition, or by any other unfair methods which have been so bitterly assailed, but through this Association and through others having a like object, demand that our representatives in state and nation conserve rather than destroy the business interests of our country. Once before, within recent years, we faced a crisis in our national life, when the integrity of our monetary system was challenged, and by methods of education and co-operation the true facts were brought home to every citizen of our country. The verdict was not long in doubt, nor will it be in the present situation that confronts us, if business men will frankly and openly put before the people at large the fundamental principle on which modern business rests, those of honesty, integrity and loyalty to the welfare of our country as a whole. The sound, sober sense of the American people will do the rest, for they cannot but realize that their individual prosperity, and even their very existence, are probably bound to the general prosperity.

Following the address of the president an address on certain phases of patent legislation was delivered by HON. CALVIN D. PAIGE, Southbridge, Mass.

PAUL T. CHERINGTON then presented a short paper on the

Limitations on Association Activities

in developing export trade.

Mr. Cherington called attention to the carelessness often found among would-be-exporters in dealing with foreign houses and the serious difficulties such carelessness frequently brought about. As a sharp contrast to these methods he cited such successful companies as the Singer Sewing Machine Co., the Standard Oil Co., and others. He then asks:

"Why should we have these contrasts between extreme carelessness and great skill in conducting American export business? As nearly as one can judge, it is because we have not been able to grasp fully the individual character of export trade development. We seem to have acquired the habit of thinking of foreign business as a collective enterprise, while we think of our domestic trade as being exclusively individual.

"If you examine many of the published articles on export business you will find that the main emphasis is placed upon such things as the desirability of a merchant marine, the establishment of branches of American banks, and such general activities as these. These adjuncts to foreign trade development are extremely valuable, and may even be necessary, but they do not seem to be the point upon which attention should be fixed exclusively or invariably. To depend upon the consular service or the Bureau of Foreign and Domestic Commerce or any other government agency or department to do all the heavy work of foreign trade building for American manufacturers, is not a very hopeful method of procedure. In a large measure also this is true of association work as distinct from individual work in foreign trade building. All of these agencies have their value, and in some respects each of them is indispensable, but each has its limitations.

"The prevailing fashion in a foreign trade discussion, just now, is a pleading for joint export efforts. Let us examine, for a moment, some of the fields for joint effort which offer greatest promise of success from their employment.

"Useful foreign trade information is divisible into two general classes. This distinction is fundamental, and failure to appreciate it accounts for much of the misunderstanding between givers and receivers of information of this character. These two classes may, for convenience, be given the arbitrary designations of "journalistic," for the one, and "strictly business" for the other. In order to get this distinction clearly in mind and to give it its necessary emphasis some explanation of the terms may be worth while.

"The first of these classes embraces such information as is based upon a broad view of American trade, looking at the commerce of the United States in the large and as a whole. In this class would be included such material as statistics, information which relates to the general principles underlying the trade of the country and suggestions as to the openings and possiblities for new lines of American goods not yet placed in the particular market under consideration. Such information is necessarily preparatory and general and, taken alone, is not sufficient for an American manufacturer to do export business on.

"The second class of information is that based upon export trade as an individual business enterprise. This embraces knowledge of particular markets as they relate to the product of the special, interested concern. It includes an intimate knowledge of local conditions and peculiarities as they bear on this single line; it involves the formation of reliable and active business connections; and it covers details of manufacturing, salesmanship, delivery and payment as they refer to the special requirements of individual houses.

"An exporter, to be successful, in addition to his general information must have this detailed information, or he is obliged to entrust the carrying on of his foreign business to someone else who does have it.

"Within the first field associated work can accomplish much, but as the exporter nears the stage of actual business his responsibility becomes more and more individual, and while the association may still help him, the dangers involved in an association undertaking this kind of work for indivduals becomes extremely grave.

"In the second place an association can do a great deal in the exchange of information about bad creditors and dishonest accounts, but, even in this field, it is in most cases safer to leave the work to those institutions which perform the corresponding service in this country.

"A third field for association work in export business, which is in many ways more promising and more important than either of these, relates to the preservation of the integrity of the reputation of the members of the organization in their export relations. The discouragement of bad methods of trading by American concerns and the arbitration, or conciliation, of commercial disputes is a large and legitimate field.

"A fourth field for association work which promises to become of great value as time goes on, is the field opened by the relations between the individual members of the association and the various governments, both domestic and foreign. Tariff disputes and the adjustment of appraisements and small misunderstandings have been satisfactorily handled in many cases by an association when individual settlement might have been more difficult and more costly.

"A fifth field, and one which is in many ways more important than the others, is the possibility of association work in meeting federated foreign competition. Commissioner Joseph E. Davies has prepared a list of twenty-one European federations for modifying export competition, which were in existence before the war started. American associations to meet the joint competition of such organizations open up a comparatively new field for joint effort and one which has yet to establish its right to exist under the Sherman law.

"Association work may help, but it cannot safely be expected to do more than help. Such work has unquestionable value, but it has equally unquestionable limitations. Each of the fields for association work already named suggests its own limitations. No American manufacturer would be content to do business in this country if he depended on these agencies alone. Beyond these, and enormously more important than any of them, would be his individual efforts at trade building.

"What can the manufacturer, say of cotton goods, do? First of all, he can forget the ocean. What would he do if this 'new' market were near at hand? He would begin by a careful study of the market. Then he would study his goods, and, if necessary, adapt them to the market. Then

he would find out something about the best method for him to do business. Then he would choose his customers and determine his prices, and price policies, and finally he would undertake, by care and forethought and all the methods of good business, to tie his customers to him, and all this would be individual, and not association work."

Following Mr. Cherington on the program was JOSEPH P. GRAY, president of the Boston Manufacturers Mutual Fire Insurance Co., who spoke on insurance methods for the payment of large losses. Mr. Gray used the Salem conflagration, which destroyed the Naumkeag Mills, as a concrete illustration of the ability of the Factory Mutual Companies to pay losses incurred. He sketched briefly the history of these companies and declared that in the eighty years since the first of these companies was organized, there has never been a failure and all losses have been paid in full.

The last paper on the morning program was entitled "The Piece Rate System for Wages in Cotton Mills," by OSCAR ELSAS, president of the Fulton Bag & Cotton Mills, Atlanta. Mr. Elsas was not present and the paper, which contained much of interest to cotton manufacturers, was read by title only. It will be reproduced in full in the June number of COTTON.

Second Session.

The second session of the meeting was the association banquet in the ballroom of the Copley-Plaza, President Albert Greene Duncan presided. The introductory address was made by FREDERICK A. FISH, of Boston. WILLIAM S. KIES, of the National City Bank of New York, spoke on "Credit and Other Problems in Foreign Commerce"; CHARLES H. BURR, attorney for the associated textile industries, discussed some "International Trade Questions"; and CLARK MCKERCHER, formerly U. S. assistant attorney general, addressed the association on

Open Door Competition

and said in part:

Mr. McKercher, in defining his subject, first called attention to a system of competition that he described as the direct antithesis to the so-called Open Door Competition in selling commodities, and gave as an illustration the bull cotton pool of 1910. This was given as an illustration of the unavoidable result of a secret arrangement to control the price of a great commodity by means wholly separated from the laws of supply and demand. The pool failed, not only because the scheme was in itself a violation of law, but besause it was secret, selfish, unfair and contrary to true commercial principles. Mr. McKercher stated that the bull pool belonged in the class with secret price agreements, secret schemes to limit output and divide territory, secret contracts to pool tonnage and profits, and that the history of investigations of such matters by the government had failed to disclose one that was permanent or lasting, that really ever accomplished what it hoped, that ever resulted in anything but trouble and disaster for its victims.

As the converse, the speaker proposed the Open Door Competition now in general use in a variety of trades, and which on account of its startling honesty and openness announced a complete divorce from the ancient methods first described and condemned. By the Open Door Competition is meant a condition in trade whereby every competitor knows just what every other competitor is doing in price, tonnage, stocks, shipments, and, in fact, everything that will enable a manufacturer to market his goods with intelligence and a certainty of a reasonable profit. By it a manufacturer secures absolutely accurate information on many essential points about which he had guessed and surmised for years. He knows the market price in every part of the country and in some cases in foreign countries. He knows just how much goods of a given kind and quality the country at large, and in many cases, particular parts of the country and foreign countries, are using. He knows by the exercise of his own independent judgment, wholly unfettered by unlawful agreement, whether the demand will justify any enlargement or curtailment. He knows whether his own jobbers, selling agents or salesmen are telling him the truth about trade conditions. He knows whether the purchasing agents in the trade where he sells his product are deceiving him about kind, quality, volume or price of goods in offers from competitors. By it he transforms a buyer's market to a seller's market. By it, to a large extent, enmities, suspicions and jealousies disappear, although no exact uniformity in price or production is reached or sought. By it no one's trade is restrained.

The speaker did not attempt to give details of the methods whereby these results were to be achieved, because these varied with demands and conditions of each industry; but in a general way, the essential principles were the same and involved an open and free exchange of information between rival manufacturers on matters that pertained wholly to past and closed transactions.

One of the happy events at the banquet was the presentation of a silver bowl containing $1,000 in gold to Secretary Woodbury as a partial reward for his long and faithful service.

Third Session.

The third session opened with the presentation of a paper by ELIHU CUNYNGHAM CHURCH, of New York, on the systematic purchase and care of

Mill Supplies.

Mr. Church said in part:

"The problem of correct purchasing is the most interesting and the most important subject before the business men of this country.

"No matter how cheaply goods may be obtained, if they are not suitable to the use to which they are to be put it is better not to buy them. Endeavor should be made to standardize the grades and qualities of material purchased and to specify the purposes for which they are to be used. The results of the purchaser's testing laboratory rather than the mere opinions of employees in the operating departments should be the controlling factor.

"In order to calculate the correct quantity of supplies to buy at any one time it is necessary to know:

"1. The quantity of stock on hand.

"2. The annual amount of all staple supplies used and the average monthly consumption of each item.

"3. The amount of material required for construction and maintenance work for as long a period in advance as possible.

"Information concerning the quantity of stock on hand is a question of stores control. A 'perpetual inventory' (card) will give this data instantly.

"Estimates for the purchase of current supplies should be based on future needs—not on past orders. Each item should be considered separately, and the reasons for laying in either large or small quantities at one time should be carefully calculated.

"Having settled upon the most suitable material to purchase, and the quantity which it will prove most economical to buy at one time, it now behooves the purchasing agent to secure it as reasonably as possible. The selling expense of a large sale is generally about the same as that of a small one. In order to take advantage of this the purchaser should combine his requisitions for similar materials, and buy altogether at one time, instead of continually running into the market for small quantities at irregular intervals. Small orders do not tempt manufacturers to bid direct, and consequently the purchaser does business with middlemen at retail prices.

"Conditions effecting production should be considered by the buyer. Where manufacturers are given leeway in the time for commencing deliveries they can often quote much lower figures than where the goods are wanted "at once." Consequently forethought in placing one's orders ahead of time, or during a slack season, often pays.

"Purchasing has generally been considered merely in the narrow sense of giving a man a requisition and then requiring him to buy the material desired, for as little money as possible. Correct purchasing is not merely a matter of 'buying.' Strange as it may seem—*the actual prices paid for supplies and materials are not of so much importance.* While a purchasing agent is haggling over some slight difference in price, he may be unaware that the supplies he is bargaining for are quite unneccessary, in fact that there are already plenty on hand. This will often happen where improper store room methods and the absence of the necessary records fail to reveal the conditions. Buying even a little extra material which is not needed and will not be used, may offset the most painstaking price shaving ten to one.

"The best purchasing economies are rendered of no avail by a careless inspection of the goods actually delivered. An infinitesimal difference in price between competitors is instantly apparent on the bid sheet, but vital differences in the value of their respective deliveries might remain undiscovered unless there be a careful and systematic inspection of all goods bought. Superficial examination and a mere counting and weighing will not suffice.

"Improper care of supplies, and careless methods of storage and issue lead to losses due to deterioration, waste and theft that counterbalance the possible savings due to careful purchasing many times over. An improperly conducted storeroom is capable of producing greater and more different kinds of loss and annoyance than any other one spot.

"In summing up, it may be said that the philosophy of correct purchasing consists in getting the right materials, in proper quantities, at a low price, and with as little cost for the doing of it as possible.

"Finally, the fact must be emphasized that "purchasing" is but one part of the larger problem of stores control. No matter how well the mere purchasing function is carried out, the losses due to improper methods of drawing requisitions; and unscientific inspection, storage, issue and use of supplies, may more than offset all the savings in power plant, factory and office.

The address following Mr. Church was a discussion of the "Methods of Determining the Length of Cotton Staple and Illustrations of their Application," by DR. N. A. COBB, of Washington, D. C.

The paper by FRANK NASMITH, of Manchester, England, on

The Utilization of Cotton Waste.

by German and Austrian methods, covered a subject of great interest. Extracts from this paper follow:

In practically every manufacturing process waste is produced, which in many cases is put to some definite profitable use. In the cotton spinning industry, although a certain amount of the waste produced is mixed with the fresh cotton and combined in the yarns forming the staple product of the mill, there is always a comparatively large amount which the spinner cannot use in this way and which he sells to the waste merchant or waste spinner.

Before going further it will be necessary to draw a distinct line between hard and soft waste. Hard waste comprising chiefly cop bottoms is dealt with by a range of machines comprising hard waste breaking machine, scutcher, breaker carding engine, derby doubler, finisher card with condenser, and mule or ring frame. It is not intended to say anything further about hard waste in the present paper, but to direct your attention firstly to the treatment of low quality soft waste—sweepings, droppings, cardfly, card strips, comber waste, etc., as employed in the German and Austrian mills.

Many spinners in the United States must have been faced recently with the problem of the disposal of their waste and no doubt stocks have accumulated, while on the other hand there has probably been an outcry for yarns suitable for manufacturing into knit goods. Well, here is the raw material on the one hand and the market for the finished product on the other. The gap between is not a difficult one to bridge and should the opportunity of bridging it be now seized there is every reason to believe that the reliance hitherto placed on exportation of cotton waste and importation of hosiery yarns will not again be necessary, besides which a new industry will be created. It must be recognized that the extreme cheapness of the material dealt with and the low priced goods into which it is eventually manufactured make it imperative that the cost of the treatment should be small. In dealing with low soft waste made up into yarns for carpet backings, sponge cloths, cheap hosiery, candlewicks, and the like, if these are to be produced cheaply, then the output must be considerable, and bulk lots will have to be handled. Particularly is this the case in regard to black hosiery yarns, and in place of the comparatively small parcels usually dyed at one time, lots of 2,200 pounds are commonly dealt with in Continental mills.

One form of Continental dyeing apparatus comprises a central perforated column or shaft and outer segmental plates. An inner and outer ring of plates are employed, these being built up round the central column. Between the inner plates and the column, the material—to the amount of 2,200 pounds—is packed, after which the outer plates are secured in position, a cover fastened on and the material washed, then dyed, and finally washed by circulating the liquors through the central column, through the material, through the inner set of plates and back to the pump. A batch of 2,200 pounds can be dyed and washed in a maximum time of ninety-six minutes. When completely treated the plates are removed, the stack of material broken down and delivered to a hydro-extractor, after which it is passed through an opening machine which will treat the wet mate-

rial. Hitherto the material used to pass direct to the drying machine from the hydro-extractor, but a great deal more steam is required for drying purposes when this is the case. After drying, the material passes forward to the first machine of the series it has been decided to use. Apparatus of this character has decided advantages over that dealing with comparatively small quantities. In the first place a saving of from 60 to 70 per cent in the steam used may be effected, and a saving of 70 per cent in the labor involved. The dye bath need only be one-half gallon for one pound of material, against two or three and more gallons to the pound where small lots are dealt with. A further advantage lies in the fact that half oily waste may be scoured and cleaned by boiling and steaming prior to dyeing and without unpacking.

Dyeing by sulphur colors affords the simplest, cheapest, and most rational dyeing process, as the first original bath may be used for months, and no skilled labor is required. Comparative tests made between open tank dyeing and the system just described showed a total saving of 22 per cent in favor of the bulk closed circulation system.

Two broad methods of bleaching are employed, either *(a)* warm bleaching for any low cotton and waste by high pressure boiling, or *(b)* cold bleaching of good clean cotton without boiling or steaming. These two main systems are subdivided into a number of minor systems chiefly applicable to the bleaching of loose material, the intermediate products, and of yarn. They apply also to loose waste of every kind, including "linters" and the short seed fiber freed from the cotton seeds for conversion into chemically pure cellulose, absolutely free from oxy-cellulose, for the manufacture of gun cotton, explosives, smokeless powder, artificial silk, celluloid, etc., and finally to the manufacture of surgical absorbent cotton wadding.

In one system of bleaching adopted on the Continent, the raw material is first opened and cleaned in a willow and then blown through a trunk into a specially constructed boiling kier with a hermetically closing cover. The kier is fitted with a filling apparatus and a sprinkler arrangement, the latter producing a spray which meets the loose cotton as it enters, rapidly penetrates and moistens it, and causes it to deposit itself—tightly packed—upon the perforated false bottom of the kier. By this method about 1,700 pounds to 2,000 pounds of raw cotton may be fed into the kier in the short space of half an hour, damped down and reduced in volume to such an extent that it only fills a kier about 6 feet 7 inches in diameter and height. The filling apparatus is then removed and replaced by a perforated lid and an internally fitted cover, so that the wet cotton is enclosed between two perforated discs, with the result that no flocks of fiber can be carried away by the circulation of the boiling liquors; thus avoiding loss of material and dangers of stoppage in pipes and valves, or clogging of the circulation apparatus. Preparing liquor is first circulated through the material and then the vat is hermetically sealed, and boiling is accomplished under high pressure up to 57 pounds, with fresh alkaline lye in conjunction with a special oil preparation. The air contained in the cotton has first been exhausted by an automatic device, leaving a vacuum. Owing to the preliminary preparatory process and to the special construction of kier a four to six hours' boil is sufficient. An electrically driven transport device then carries the boiled cotton into a second wooden kier—a bleaching and neutralizing apparatus of simple construction provided with a suitable circulating arrangement. The bleaching bath acts on the material without pressure for two hours only. The bleaching bath is followed by a thorough rinsing, half an hour sour, and then a final thorough washing out in the same apparatus, after which the material is automatically discharged to the hydro-extractor, thence to the wet cotton opener.

A cold bleaching process sometimes employed is based on the use of hypochlorites of alkalies and oil preparations. These oil preparations are intended on the one hand as aids to rapid moistening and capillarization, so that the bleaching liquor not only touches the surface of the fiber, but penetrates in a very short time into the finest pores and crevices of the fiber in which the colored impurities are chiefly located. On the other hand, they serve as conductors of oxygen, and effect therewith an energetic oxidation of the impurities while preserving the natural character of the fiber.

Coming to the machinery necessary for the production of yarns, it is proposed merely to give the names of these with a few details of special machines. The first is the opening

SECRETARY C. J. H. WOODBURY.

machine, known as the willow, which in the ordinary way has to deal with matted material in an extremely dirty state. Dust exhaust devices have now been applied to willows which have very materially improved the conditions existing in opening rooms. On the Continent, fresh raw cotton of short staple—chiefly Asiatic cotton—is mixed with the waste and a Crighton opener becomes a necessary unit of the plant. A great deal of the soft waste made in both mule and ring mills is found to contain hard threads which may form a comparatively small percentage of the total weight, but nevertheless have to be separated out before the waste can be returned to the mixing. Machines termed thread extractors are employed to remove these hard threads and they comprise a feeding funnel, three spiked rollers which are made to revolve at a high speed to thoroughly loosen the material so that the "soft" waste is separated from the "thread" waste; a fan to draw away the soft material the threads wrapping round and being retained by the spiked rollers. A machine

that has given excellent results in the direction of improving the mixing is termed the Pickering machine, made with either one or two cylinders. The scutcher and lap machine employed does not differ very materially from the type used in the ordinary mill.

It is when we come to carding that a difference in methods and machines between Continental and English spinners is to be noted. For yarns from 1's to 6's a comparatively simple plant is advocated in England with a set of machines comprising a single breaking carding engine fed by scutcher laps, and connected by a Scotch feeder to a single finisher carding engine with ring doffer. It is claimed that a ring doffer condenser makes the best quality of yarn, besides which it is simple in construction and easy to work. Leather tape condensers are also employed and several improvements have recently been made in this class of apparatus. The advent of condensers with four and six tiers of rubbing leathers has rendered it possible to produce the maximum number of threads (up to 240 in the case of machines 72 inches wide) without risk of their coming in contact whilst being rubbed, and the output of a set of carding engines is thereby materially increased.

As has been previously pointed out, one of the chief objects of the Continental waste spinner has been to secure large production in short periods of time and to this end the machinists have developed a form of card—on the woolen principle—which certainly achieves the desired result. Compared with the machines advocated by English makers, the Continental cards are complicated and demand a higher class operative to tend them. The difficulties in relation to stripping and grinding have in the past proved a deterrent to their large adoption outside of Germany and Austria, but it certainly cannot be denied that their production is very considerable. The waste trade can be divided as follows: waste yarns, 1's to 4's; imitation vigogne yarn, 4's to 8's; vigogne, 8's to 20's, and modifications in the carding sets are made for each section.

In the Continental double doffer cards each swift is furnished with two doffers, a larger and a smaller one, and with two fancies, with five pairs of workers and strippers to each swift. Attention has been directed to the construction of the machine to collect fly and dirt and to avoid air currents. From a double doffer card the tape condenser receives two fleeces lying one on the other so that the number of threads being equal a stronger roving is produced than that from the single doffer card.

One important improvement introduced by Continental makers is the new type conveyor introduced to carry the fibers and present them to the feed roller of the finisher card. By its employment the fibers are fed lengthwise to the card, a method that has produced excellent results.

Recently improvements have been made in condenser carding engines to secure an increased doubling and blending action so as to intermix the irregular weights of sliver in the derby doubler laps and so produce even and regular ends on the condenser bobbin. The improvements comprise means to impart an endwise travel to the feed and worker rollers. The worker rollers are not all moved in the same direction at the same time but are alternate in their movement.

From the card the condenser bobbins can either be put up at the mule or ring frame. The former has been developed particularly for waste spinning and three speed mules are now common.

The Chapon frame is largely adopted on the Continent. It has been introduced for the production of low counts of yarn from ½'s to 4's, and it is claimed to be specially suitable for spinning a full, soft thread, with the least possible amount of twist for weft or filling purposes. The essential mechanism of the frame comprises a metal cup, spindle and flyer. The cop is built on the spindle within the cup and as the thread is wound on the spindle the latter with the cop are gradually forced upwards until the full length of cop is attained. The flyer is employed to impart the necessary twist and the crossing of the thread on the cop is obtained by a vertical movement to the flyer by a lifting rail. The flyer has consequently a vertical motion in addition to the rotary motion, while the cup has a rotary motion only. The cup and flyer revolve at the same speed, and slightly quicker than the steel inner spindle, therefore the distance between the two speeds causes the winding-on to take place, but the tension of the sliver is so very slight that the most delicate and slightly twisted threads may be wound without difficulty.

The ring spinning frame has recently been improved in a somewhat simple but effective manner. In place of one front top roller, two such rollers are employed in combination with one front bottom roller. The middle top roller is lightly weighted but set close to the back roller of the pair of front top rollers. Short fiber is easily drafted and when long fiber is passing through, the middle top roller becomes practically inoperative as the front rollers can easily draw the long fibers under the middle top roller without damage. In combination with the improved condenser card previously described excellent results have been secured.

It is not necessary to describe the weaving and knitting mechanism employed in the production of waste fabrics, but a word might be said about raising machinery. Large raising machines having forty raising rollers are now employed for particular classes of cloth, such machines being provided with roller bearings and giving an enormous output. In brushing and raising tubular knit fabrics it is necessary to insert an expanding device within the fabric, which is held in position by a pair of rollers in order to keep the cloth open while it is being raised. Many waste fabrics are dealt with by machines of this class as they leave the loom, but other fabrics are finished or printed before being presented to the raising machine. Combined starching, stretching, and drying machines are employed in finishing the fabrics, and where printed goods are produced a new method of drying by hot air while maintaining the fabric under tension has been adopted with quite good results. In printing fabrics the German and Austrian manufacturers have made rapid strides. Cotton suitings printed both sides, are pointed examples of the care exercised to secure certain effects. In Germany, to a certain extent, a new system of electric driving of printing machines has been adopted whereby more perfect speed control can be secured. The fabric under treatment can be printed at a speed exactly suited to it, the registering of the design and the impression obtained being thus extremely accurate and perfect.

It is impossible to draw a comparison between the soft cotton waste industry of England or the United States, and the Continent, because in the latter case we have a highly developed specialized trade built up gradually over a number of years, and in the former up to the present we have only a small industry not to any great extent endeavoring to produce high class waste fabrics which will act as substitutes

for the real article. Quite a considerable market is open to the manufacturer who will lay himself out to compete with the Continental mills. It must be clearly understood that cost is important in the success or non-success of the undertaking, and in certain qualities it is only by treating the material in large quantities that the first costs can be kept at a figure at which competition is possible.

The paper by WILLIAM D. HARTSHORNE, Methuen, Mass., entitled "Relations Between Humidity and Regains on Wool and Cotton," was of great scientific value and really extended and enlarged the papers prepared along similar lines in 1905 and 1911 and published in the transactions of the association.

Next on the program was the interesting paper describing the further results of

Moisture Tests on American Cotton.

at the Havre conditioning house. Dr. DANIEL E. DOUTY, manager of the U. S. Conditioning and Testing Co., who prepared this paper, presented a similar paper at the Atlantic City meeting in October, 1913, giving a brief report upon the results which had been obtained at the new cotton conditioning house at Havre during the first five months of its operation. The report covered 19,939 bales, or approximately 9,969,500 pounds of cotton, and the result showed that a portion of this amount gained upon conditioning 39,090 pounds, and that the remaining portion lost upon conditioning 82,688 pounds.

The loss and gain was computed upon the basis of a standard regain of 8½ per cent. These results, although of a preliminary nature, seemed of such vital importance to the American cotton manufacturers, that he made an endeavor to keep in touch with the further work of this special cotton conditioning house.

"During last summer I arranged to visit the house in order to observe the methods employed in sampling and testing," said Dr. Douty, "and to obtain first hand information upon the extent to which the results were being applied. I was unfortunate in having planned my visit to Havre for July 13 and 14, which happens to include the French Independence Day. The house was therefore not in operation and I was compelled to cancel the visit.

"Having been prevented by the declaration of war from returning to Havre later in the summer, I endeavored to obtain further information by corresponding with Monsieur A. Longre, the manager of the Conditioning House and Monsieur Berger, secretary of the Syndicat General de L' Industrie Cottoniere Francaise."

Dr. Douty's paper included his inquiries for reports and information and the replies received, which included the detailed results of tests made on 64,000 bales from Sept. 1913, to July, 1914. These results he summarized and tabulated, attaching the tables to his paper.

Table No. 1 shows the gain and loss upon conditioning arranged by months and the districts from which the cotton was shipped. Texas cotton is the only class that contained an appreciable quantity of dry cotton. It is interesting to note that all of these shipments which were dry, were received in Havre early in the cotton season. All lots of Texas cotton tested after January 1, 1914, show an excess of moisture amounting in many cases to more than 3 per cent.

Table No. 2 contains a summary by districts, showing the total number of bales tested from each district, and the approximate quantity in pounds based upon the assumption of a 500-pound bale.

The value of this work is, perhaps, best appreciated by cotton manufacturers when this gain or loss by moisture is converted into terms of dollars and cents and Table No. 3, which gives this approximation is reproduced. The results have been computed from the actual loss and gain on each individual lot, and an average value of 15 cents per pound in Havre has been assumed.

TABLE 3.

District.	Weight of Cotton. Pounds.	Moisture.		Value of Moisture at 15c per lb.	
		Gain Lbs.	Loss Lbs.	Gain	Loss
Texas ...	1,884,000	12,581		$1,887	
	9,418,000		149,804		$22,472
N. Orleans	3,862,500		80,817		12,123
Ala.	2,464,000		47,126		7,069
	75,000	174		26	
Georgia .	1,063,000		15,440		2,313
Carolina .	704,000		18,000		2,700
Miss. ...	596,500		13,249		1,987
Louisiana	75,000		2,114		317
Tennesse	100,000		1,711		257
	10,000	931		140	
FromSt'ge	11,657,000		217,555		32,634
Total..	31,999,000	13,686	545,816	$2,053	$81,872
Value of excess moisture					$79,819
Cost of tests upon schedule of fees.....					4,716
Net cash gain to French Spinners					$75,103

Following Dr. Douty on the program was an excellent paper by GEORGE C. STONE, C. E., of Lockwood, Greene & Co., Boston, on the

Use of Reinforced Concrete.

in cotton manufacturing plants.

Mr. Stone briefly sketched the history of the use of morter reinforced with other materials in building construction and continued:

"Since you have had the pertinent details of reinforced concrete design and construction presented to you so ably and in such profusion, at former meetings, we shall refrain from any useless repetition here. Instead, we shall show you actual examples of what has been done with reinforced concrete in cotton manufacturing plants."

The advance prints of Mr. Stone's paper were fully illustrated with these examples upon which he commented as he continued, saying in part:

"The first large textile plant in the United States to be built entirely of reinforced concrete was the plant of the Maverick Mills in East Boston, Mass., which consists of a 51,200 spindle mill, weave shed, and power plant. The plant is designed for an ultimate installation of 250,000 spindles.

"The spinning mill of the Maverick plant is only two stories in height at present; but the foundations and present stories are designed for the addition of two more stories. The floors have a granolithic finish, placed monolithic with the slab; the curtain walls are of salt-glazed terra-cotta block, 8 inches thick, and the wall columns are very narrow to give a maximum of light area.

"Little or no difficulty was experienced in setting up the machinery on the concrete floor. Here we have an illustration of the advantage to be derived from the solid concrete floors in case of the opening of a sprinkler head in an upper story, for the water would be held by the concrete slab and run off through the wall scuppers without deluging and damaging the motors, machinery and materials in the story below."

Mr. Stone discussed concrete warehouse construction, citing examples. He also called attention to two sections

of a weaving mill at Ansonia, Conn., to which a third section has been added.

In another weave shed is shown 12-inch square columns spaced 26 feet by 21 feet 4 inches. The floor finish was granolithic, laid monolithic with the slab, and the looms expansion bolted to the floor.

"In power plants," continued Mr. Stone, "concrete has had a wide range of application; and its field of usefulness in this class of buildings is rapidly growing. In nearly every recently constructed water power plant of any size, reinforced concrete as a structural material has played an important part, though not often in the actual frame of the power house. This is but the natural development arising from the very extensive use which has been made of plain concrete in such plants for many years. With steam power plants, until quite recently, the use of concrete has not been so general except for such purposes as engine and pump beds, and foundations for boilers, chimneys and walls.

"The principal reason, perhaps, that reinforced concrete has not played a more important part in steam power plants is that the size and shape of the buildings usually are not such as to make them suited for economical reinforced concrete construction; but when the design of the building takes into account the peculiarities of the building material, then the cost for reinforced concrete usually can be materially reduced.

"The power house of the Maverick Mills, like the other buildings, is so designed that future extensions can be made at any time, without interrupting the operation of the present plant. With reinforced concrete this is easily done. The reinforced concrete floor is framed around the heavy turbine beds, while the smaller equipment is carried directly on the floor. The roof beams span across, leaving the floor free of posts; thus the traveling crane has command of the entire room. The crane girders are supported on concrete brackets cast monolithic with the reinforced concrete columns, a very economical and satisfactory arrangement."

The use of reinforced concrete in boiler house and coal pocket construction was also discussed and illustrated with photographs from the plant of the Pacific Mills at Lawrence, Mass.

Mr. Stone then took up the question of appearance and declared that "it is frequently asserted that concrete buildings are unsightly, that they are an eye-sore and detract from the appearance of other buildings near them. Very often this is true. We have seen concrete buildings which were as plain as a drygoods box, with absolutely nothing sought in their design but floor space and protection from the weather, and maybe some light. We have seen concrete buildings, too, which fairly made one dizzy from their disconnected way of rambling over the landscape.

"To our friends who claim that concrete buildings are often unsightly, we reply that their claims are right. We admit it and lament it; but we add that in every case the unsightliness was either deliberately intended for purposes of economy, or else it was unnecessary. We have shown where practically the only attempt at improving the appearance was devoted to the proper proportioning of members and to the careful selection of materials, without appreciably increasing the cost of the building, and these buildings certainly are far from being unsightly.

"We have attempted to show you some of the uses of reinforced concrete as related to several of the phases of cotton manufacture. To attempt to cover the field would be futile, for the field is very broad. We cannot expect to do more, in a paper of this kind, than to point out typical examples selected here and there, leaving for direct discussion the further details of the subject. We have chosen here, too, to dwell upon what has been done in this comparatively new line of construction, rather than upon what may or might be done. No hard and fast rule can be given you for the selection of building material, nor can you lay down one for yourself, because of the number of conflicting circumstances for which allowance must be made at the time of selection.

"No paper of this kind, having for its subject the use of a certain material for construction purposes, can be complete unless it dwells to some extent upon the costs involved. All of us who have had experience with building construction of any kind know that seldom do the costs involved in any two installations agree. The causes of these variations are many, but we may mention the cost and condition of the site, the cost of the materials at the site, local labor conditions, and, above all, the design of the structure and the handling of its erection. For example, we know that reinforced concrete spinning mills have been built for a dollar per square foot, weave sheds for $1.80 per square foot, and storehouses for 85 cents per square foot. Under similar or more favorable conditions there is no reason why these prices cannot be repeated or reduced. We know that reinforced concrete store houses have been built at a cost of 7 cents per cubic foot, and this figure certainly can be duplicated. But such comparisons impress upon us more and more the difficulty of estimating accurately the cost of work about which little is known, and the danger of attempting to state the probable cost of projected work without looking into the special conditions to be met and referring to the cost of previous work of a similar nature.

"In the matter of upkeep, reinforced concrete structures are very economical. The inner surfaces are painted, not to protect the material from decay or corrosion but for appearance or for better lighting. The outside surfaces of the concrete frame and the curtain walls are given such finish as may be desired immediately after the walls are completed; further than this they usually need no attention. No parts of the building need to be renewed except the wearing surfaces on the floors. These should be designed with special treatment for much used portions, so that parts subjected to excessive wear may, if necessary, be repaired or replaced economically and with little interference with operation.

"Coming properly under the heading of upkeep or maintenance is the question of insurance. This is considered ordinarily in two lights: insurance on the contents and insurance on the building. On these we shall not dwell, for they are well understood. There is a third light, however, in which we should consider the question of insurance, on the plant.

"Whether the underwriters so recognize and rate it or not, the presence of a well designed, sizable, and properly constructed reinforced concrete building in the mill yard is an added safeguard against risk from fire. In the first place, every building in the yard is a fire risk; its contents, or part of them, may burn even if the building cannot. In the second place, every building in the yard which is not of fireproof construction is in itself a fire menace to every

other non-fireproof building in its vicinity. But the properly designed fireproof building is self-containing in that a fire which starts within it is kept within its walls, and so that building is not to be classed as a fire menace. On the contrary, the presence of such a building in the path of a fire is a valuable asset and is just so much protection to the buildings beyond. A good evidence of this was shown us at the time of the recent flood, followed by fire, in Dayton, Ohio. The flames were checked and effectually blocked by the presence in their path of a five-story reinforced concrete building which, except for the loss of some of its glass, suffered but little from the fire.

"The fire at Salem, Mass., swept the ground bare of the flimsy buildings in its path, and stopped only when it reached the harbor line. The behavior of two buildings in the yard of a mill here has been published at some length. One of these, a brick building without windows, and with its outside almost bare of inflammable material, came through the fire unscathed; the other, a small reinforced concrete storehouse with solid concrete curtain walls, small wired-glass windows and tin clad shutters, had some of its glass melted, but the heat did not penetrate inside sufficiently to open the sprinklers.

"In buildings for cotton manufacturing we provide sprinklers and hose lines; we recognize the value of outside stair and elevator towers, cut off from the main building by fire-doors. In storehouses we go further and subdivide the building into small floor areas by means of fire-walls; but we still require mills and sheds to be designed with floors wide open from end to end. Our prediction is that in time we shall adopt a policy for spinning mills and weave sheds similar to that already in use for storehouses. Thus, every building will be so designed that a fire in one section of a floor cannot sweep through the entire floor, but will be checked and stopped by solid walls so arranged as to divide the floors into convenient areas. When we combine with the use of reinforced concrete buildings limited floor areas and properly safeguarded door and window openings, we shall have made a long step toward improvement over what has been accomplished already in the use of reinforced concrete in cotton manufacturing plants.

The next paper on the program was by LEONARD C. WASON, president Aberthaw Construction Co., Boston, who discussed the

Uses for Concrete Construction.

by cotton manufacturers, and said in part:

"One advantage of reinforced concrete in the construction of mills is that small wall columns can be used, permitting very large window areas, so that light is uniformly distributed throughout the length and width of the rooms. The usual design is the girderless floor, which gives a flat ceiling so that there is no obstruction to light, and the wall beams are above the floor line instead of below. This permits the window frames to reach the ceiling, so that the glass may be within an inch and a half of the ceiling level. The wall beam forms in part the curtain wall between the floor line and the window-sill. As daylight is cheaper than artificial light, and as metal framed windows with wire glass are as cheap as masonry curtain walls, there is a saving in first cost of construction, and a saving in operation, due to the illumination. While there is more radiation of heat from the glass area, there is less leakage, due to the tightness of the metal sash, and probably not much difference in cost of heating.

"In buildings where there is reciprocating machinery, like looms, all working together, and whose moving parts have a uniform speed, there is a large advantage in concrete, because the greater solidity and rigidity of this floor absorbs this vibration. This adds to their life and reduces the possibility of breaking the threads, which affects the cost of operating and the quality of the product. Looms can be run 15 per cent. faster on a solid concrete floor than on a floor subject to vibration. It has also been found that, due to the rigidity of the floor, there is a distinct saving in power.

"This makes concrete very advantageous for weave sheds, and the construction of a concrete sawtooth roof is not much more expensive than one of wood, while it has advantages over wood besides that of fireproofness. The additional material necessary in building a floor for a heavy load is relatively small; so that floors carrying heavy loads, as in a storehouse, are cheaply obtained. It is also an easy matter to render the floors and walls so dense, by the proper proportioning and placing of the concrete, as to be waterproof. This makes the material admirably adapted for use in such wet places as dyehouses, where water and steam are freely used. It is an easy matter and relatively inexpensive to make the floors water-tight and to pitch them to drains, so that water can quickly be removed from their surface and the floor below guaranteed against damage from leakage.

"In the steam power plant, concrete can also be used to very good advantage, not only in the building itself, but for boiler foundations. It is not advisable, however, to use concrete higher up for a boiler setting, although in isolated cases this has been done. Brick is better adapted to this purpose. Concrete is not a proper material to be used in the fire box, or where temperatures are high.

"By the tme the burning gases from a boiler reach the chimney the temperature is such that no damage is likely to ensue, and the chimneys can be easily and cheaply built of reinforced concrete. Instead of a heavy gravity construction as is used with brick, the design is that of a broad base and vertical shaft, tied rigidly together so as to be a unit. Thus the chimney might be compared to a candle, which by itself is unstable, but when set in a candlestick the combination cannot be readily tipped over.

"Another use in the power plant is for coal pockets. There are a number of elevated pockets holding a depth of 40 feet of coal, a pressure of over a ton to the square foot, and the material can be economically designed to carry these loads. Even should spontaneous combustion occur in a compartment, it need not necessarily destroy the pocket. Though the burning coal creates a considerable heat, it can either be drawn out or flooded with water before injury to the pocket occurs, while a wooden pocket would be wholly destroyed. The first cost of such a pocket is about ten per cent more than that of a wooden one. Its life is much longer.

"For engine foundations, plain concrete is now almost universally used. It has greater weight per cubic foot than brickwork, it is more quickly and more cheaply placed, and both tests and experience have proved that it is immune from deterioration by the lubricating oil inevitably spilled upon it.

"Equally important with the use of concrete in connection with steam power is its use in connection with water power development. In the development of power from

the fall of water in a river, the integrity of the investment depends upon the stability of the dam which impounds the water.

"Big block stone is seldom if ever used today for foundations. Concrete, being strong and improving in strength in moist places instead of deteriorating, has become practically universal. Where the ground is firm, the problem is simple. Where the ground is of moderate bearing capacity, it is very easy, by reinforcing, to spread the load over a wide area, with an increase in depth of not over one-third the spread, thus materially saving in excavation.

"Concrete piles of various types have been used to good advantage. Some are cast in place, having first driven a shaft to make a hole in the earth, and then used the earth as a form. Again, a steel core is driven with a thin sheet covering which is left in place and filled with concrete. Some concrete piles are cast on the surface of the ground, permitted to harden, and then driven like a wooden pile. The carrying capacity of a concrete pile is equal to three wooden piles. Where the ground water level is low, which would require cutting off wooden piles at a considerable depth below the surface of the ground, capping them and building a pier above, concrete piles can be used to good advantage and with economy, because they are brought to the underside of the cellar floor. They thus save in the excavation and masonry necessary to cap the wooden pile.

"If it is found desirable to add to the height of a building, and the foundations are inadequate to carry the additional load, they can without much difficulty be underpinned in sections with reinforced concrete. In this way a broad spread can be made as previously described, and with very little excavation. When a short section has sufficiently set, an adjoining section can be opened out and the process repeated, until the whole building is reinforced, when the additional load can be placed upon it.

"The use of concrete for roofs has simplified the waterproofing problem. Instead of using 5-ply roofing paper, 3-ply will be found ample. The saving from this source often exceeds 2 cents per square foot, or $600 on a mill 75 by 400 feet. The two extra plies used on a wood roof are needed to make a smooth surface, but the concrete roof is already smooth.

"For a picker room, concrete is especially well adapted. It not only makes a room which is fireproof in itself; but it forms a tight surface, through which lint cannot be blown by the pressure of the fans. The contrast in this respect with a wood floor is very marked, as those who have been annoyed by lint hanging down from the ceiling of the room below the picker room can well testify.

"Some of the minor uses for concrete in the cotton industry are for tanks for holding clear water or liquors of various kinds. For tanks to hold chemicals or dyestuffs, the user must consider whether or not these chemicals will attack the tank itself. As the base of Portland cement is lime, acid will attack it. If the concrete is porous, and the tanks are alternately emptied and filled, even alkalies will destroy it, due to the crystallization of the alkalies within the pores, which mechanically disintegrates the concrete.

"Other uses are for filter beds in the filtering of water for manufacturing purposes, and for reservoirs for the storage of water for fire and other uses.

Another use to which concrete has been put to a limited extent is for cloth pits in bleacheries. Here the results to be obtained is a surface so smooth that no injury will be caused to the most delicate fabrics, and yet so hard that no particle whatsoever will rub off and be mixed with the fabric, which later has to go through other processes, such as dyeing or printing. This type of pit requires special construction to obtain these results. In a recent plant of large size, a number of pits of this type were used, even at considerable increase in cost over wood. Except where heavy acid is used, these pits have proved very satisfactory. Cement walls cannot be satisfactorily acid-proofed.

"In regard to the relative cost of a reinforced concrete fire-proof mill and one with brick walls and wooden floors, the former used to cost about 15 per cent more on the average. As improved methods have been developed in the handling of men and materials on reinforced concrete, the prices have more nearly approached one another. In a number of cases they meet, and in a few cases the reinforced concrete building is cheaper in first cost.

"Perhaps the most important reason why manufacturers are building of fireproof construction today is to insure a continuity of their market. If, as many do, they sell under a special trade mark, and this is off the market for a number of months, it is difficult to recover the lost ground. The building and contents may be insured; the market cannot."

Fourth Session.

The fourth session opened with an interesting paper by DEAN BYRON CUMMINGS, of Salt Lake City, on "The Textile Fabrics of the Cliff Dwellers."

This was followed by a discussion of "Our Textile Industries and Europe's Calamity," by ARTHUR H. GULLIVER, Norwichtown, Conn. Mr. Guilliver indicated that in his opinion it is wiser for cotton manufacturers to pay a higher wage if necessary to keep old, experienced operatives than to replace these operatives with younger and less experienced workers because they are procurable at a lower price. He also urged more careful attention to the question of uniformity of product, and showed that many times this uniformity was seriously affected by the desire for too much speed.

The paper by EDWARD S. CHAPIN on the revival of the

Use of Natural Dyestuffs.

was of a rather technical nature and contained many details of interest to the dyer. In order to allow a more complete reproduction of this paper than present space will allow and at the same time give such readers as wish to file these formulae for future reference an opportunity to do so, this paper will be reproduced practically entire in the dyeing, bleaching and finishing department of the June number.

Other interesting papers presented at the fourth session were "Two Problems of the Coal Tar Industry," by BERNHARD C. HESSE, of New York, and the "Dyestuff Situation in England," by LOUIS A. OLNEY, of the Lowell Textile School. Then came the report of the committee on dyestuffs and the

Election of Officers.

This occupied but a few minutes time as the entire board of officers were re-elected for another year. President Albert Greene Duncan and the other executive officers of the administration are to be congratulated, and their unanimous re-election shows their efforts were fully appreciated by the entire membership of the association.

The convention then adjourned.

You should do your part. Read on page Two Hundred and Forty-seven.

Memphis Convention of the American Cotton Manufacturers Association

The combination of perfect weather, interesting program, unsurpassed entertainment and enthusiastic members made the annual convention of the American Cotton Manufacturers Association at Memphis one long to be remembered by those in attendance as one of the most successful meetings on record.

Many arrived on Monday preceding the meeting and Tuesday morning found special Pullmans rolling in from Boston, New York and Atlanta over the Southern, the 'Frisco and the N. C. & St. L., while other roads handled delegates from sections where the attendance was not sufficient to warrant special equipment.

One of the unique features of service rendered the members and guests of the association was an information bureau and stenographic service in a room located right at the entrance of the convention hall at the Hotel Chicsa. The Memphis Terminal Corporation operated this room for the convenience of the visitors, Vice-President W. G. Turner taking personal charge. Five expert stenographers with the necessary machines and stationery were in constant attendance from 9:00 A. M. until 11:30 P. M. each day, all correspondence being handled and all stationery furnished without cost. Telephone and telegraph service was installed in this room as well as a ticker service from the Memphis Cotton Exchange. Another feature was letter heads made from cotton cloth and bearing the following imprint: "Headquarters American Cotton Manufacturers Association, Chicsa Hotel, Memphis, Tenn., April 13-14, 1915, Reception room, Memphis Terminal Corporation." A beautiful 50-page souvenir booklet was also presented to the visitors illustrating the plant of this corporation, which is the largest single plant of its kind in the world.

Just before reaching the reception room and the main convention hall was located a very interesting exhibit installed by the Department of Commerce and in charge of W. A. Graham Clark of the Atlanta branch office. Mr. Clark had hundreds of cloth samples arranged in book form with particulars and prices of each. Much interest was shown in this exhibit.

The First Day.

President Hickman called the meeting to order and the REV. HENRY F. DUGAN pronounced the invocation. CHARLES M. BRYAN, representing the mayor, then welcomed the delegates to the city of Memphis, the response being made by PAST-PRESIDENT W. A. ERWIN of West Durham, N. C. Then came the annual address by PRESIDENT T. I. HICKMAN which aroused much favorable comment from the attentive delegates who filled the convention hall and which follows in part:

President's Address.

Time in its flight has brought us to another annual meeting and it hardly seems possible that it has been a year since I was elected to the presidency of this association.

It has been a year of tremendous importance—not only from our own standpoint as manufacturers, but from the standpoint of the world's history. I doubt if any former president of our Association has had the grave problems to face which I have had.

A CAMPAIGN OF EDUCATION.

At the beginning of this world's war, the necessity of helping the mills to get business was important, and I saw nothing that I could do which would help the Association more, than to conduct a campaign of education on the uses of cotton goods. I started this about October, and delivered a number of addresses over the South, and was warmly received everywhere. I tried to lead the people from the false slogan of "Buy-a-bale-of-cotton" to the sensible solution of consumption of cotton by the use of cotton goods—and in this I believe that we have met with a fair share of success. The matter has now obtained nation-wide advertising, and I believe there are more people now wearing cotton goods, and considering the wearing of them, than ever before in the history of our business.

One of the greatest factors in the dissemination of knowledge about cotton goods, was the splendid work of the Rotary Club of Birmingham, Alabama, when they formed the Cotton Products Consumers League of America, to whom we all owe a debt of gratitude.

The newspapers of the country have also been very kind

to us in this matter. They have published everything they possibly could, and in most instances without any cost to our Association.

The Cotton Goods Exhibit given at the Partridge Inn, Augusta, Ga., March 4th and 5th, and gotten up by our Association, was a revelation to everyone who attended. Augusta being a winter resort of national fame, people from all parts of this country and Canada (and some from Europe), were present at the display, and manifested great interest. To my mind this was one of the best opportunities manufacturers have ever had for exhibiting their products, and many manufacturers sent beautiful displays. We showed every character of cotton goods, suitable for household purposes and also from the very coarsest fabrics used in automobile tires, up to the very finest wearing materials retailing for several dollars a yard. Many of these cloths were made up into garments and exhibited on living models—the men wearing cotton clothes, from a beautiful and attractive suit worn by L. L. Arnold, editor

PRESIDENT T. I. HICKMAN.

of "COTTON" (in Atlanta), down to the khaki uniforms worn by firemen and policemen. The ladies were dressed in lovely cotton gowns costing anywhere from one dollar to fifty dollars, according to the character of material used. Our Association offered several prizes for the cheapest gowns, and you would be surprised to know how well these look made up of cloth costing less than a dollar.

EFFECT OF THE WAR ON BUSINESS.

I am frank to say that the war has not brought about the business for which we all looked. At the beginning of this war, it was predicted that the cotton mills of this country would be running day and night, and while these conditions have materially improved with us, they have not by any means reached the high-water mark that we anticipated. In fact, a good many of the mills are today running on short time, and I am sorry to say that from what I can learn, not very many of them are doing a profitable business. However, it does seem that the goods which all of us made during the past year, have been consumed by somebody.

FAULTY DISTRIBUTION OF GOODS.

There is a tremendous amount of complaint as to the alleged "faulty distribution" of goods. A number of the best-posted men in this country believe that a great deal of the blame for this lies with the commission merchants in the large cities and the lack of unity which prevails among them. Some people go so far as to claim that the jealousies existing between these merchants has caused them to sell goods at times regardless of the interests of the mills. They also claim that instead of all the agents seeking trade they allow the trade to seek them through the channels of brokers or otherwise (these brokers having little or no interest in the mills, their sole purpose being to make sale). On the other hand, we do know that there are a number of reputable commission merchants who have agents in foreign countries, notably China and South America.

The New York Times, under date of March 21, 1915, has a long article on this subject, under the heading: "Trade Abuses Due to Lack of Union," and it goes on to say: "It would be difficult, according to an officer of one of the leading dry goods commission houses, to find any trade in which there is less cooperation for the abolition of trade abuses, than among the manufacturers and commission firms which are located in the Worth Street district." This lack of cooperation, he says, is in one way or another costing the firms in question a good deal of money every year, and the stress of competition will hardly admit of any one house playing the part of a commercial Billy Sunday and endeavoring to do away with business sins that should be summarily dealt with.

One of our best-posted manufacturers, who is also a leading-spirit in this Association, says that undoubtedly we are the poorest merchants in the known world—and when he says "we", he means all of us, manufacturers as well as agents.

Some people point to the fact that while many commission merchants have grown enormously rich, the condition of the mills has not improved. On the other hand, a great many people claim that the fault lies with the mills themselves in not uniting on some reasonable basis. While the Sherman anti-trust law stares us all in the face, yet it does seem to me that we are just as guilty as the commission merchants in our lack of organization. This Sherman law does not permit either the agents or the mills to form a trust, but at the same time, the United States Government does not expect the agents to sell goods at less than the cost at which the manufacturers can produce them. Neither does it expect the mills to make goods and lose money thereby—which many of them have been doing and are doing at the present time. There is a great fault somewhere, and whether or not it is all due to the agents or all due to the mills, I am unable to say—though I am inclined to think that in many instances they are both at fault.

One great trouble with the mills of this country, and particularly southern mills, is the burden of debt which they are carrying, and which compels them to sell goods at times in order to realize money with which to carry on operations. Of course much of this money has to be borrowed from commission merchants, and they at times get tired of carrying goods and wish to reduce their indebtedness.

Without taking sides in this tremendous controversy, may I take the liberty of saying that it is high time we were all "getting together" in some common-sense way, for the protection of the mills? After all, the commission merchants naturally want their mills to prosper rather than have them go into the hands of the courts.

FOREIGN TRADE.

A great deal has been said about the necessity of seeking more foreign trade. We ought to do a much larger business with Cuba and South America—though the main trouble with the South American trade at present seems to be lack of knowledge as to exactly what they want; and the necessity of formulating some plan whereby we could carry their accounts for the long periods which Germany and England have heretofore done, or to finance these accounts in such a way as we could handle them. With reference to this South American trade, we are as yet touching only the countries bordering on the Caribbean Sea (where our trade is increasing somewhat), but of Argentine and Brazil we know scarcely anything, and the business in these two countries ought to be a very important matter to us.

Our business with Africa and the Red Sea ports should also be greatly enlarged, and we should send agents to these important countries to sell our products. I wish that some of our manufacturers could themselves go in person, and I think we would do well to join the National Association of Manufacturers in sending representatives to these countries as well as to South America and Cuba.

For the last two years we have been worrying ourselves a great deal about the tariff—some of us think necessarily and some unnecessarily. There is a wide variation of opinion in this matter. There is no question about one thing, however, and that is that the tariff was reduced too much, and if Congress had adopted the suggestion of our Association instead of its own ideas, we would doubtless have been much better off. The war is naturally preventing any large importation of goods to interfere with us now, and it will probably be many days to come before we will have anything to worry us in this line. When peace is established, however, we certainly should have, for the benefit of the manufacturers and business-men of this country, a tariff-commission—men who understand and know the business, and know how the tariff ought to be regulated with reference to everybody concerned.

MERCHANT MARINE.

I have always believed in the necessity of a nation subsidizing its merchant marine. This was drilled into me by my good old father when I first started into cotton manufacturing, thirty odd years ago, and I am just as firmly convinced as ever of the necessity of subsidizing ships. England and Germany have built up their enormous trade facilities in this way, and I hope the time will come when our government will see the wisdom of adopting this policy. I do not know that I would go so far as to say that I believe we ought to have government ownership of merchant marine, and I think probably it would be inadvisable for our country to buy all of the foreign vessels and own and control them, but I do believe that if we are now going to undertake any tremendous amount of foreign trade, we must prepare for it by having ships in which to haul our products—and the only way we can get people to invest their money in these steamships until our foreign trade is firmly established, is to have government aid. When this is done, even when the war is over, we can compete without any difficulty with any of the foreign countries which have heretofore had this great advantage over us.

EDUCATIONAL PUBLICITY.

I would respectfully suggest that our campaign of education be continued. I do not know of any better way that we could do this than to adopt a suggestion made to me by a prominent railroad official, to the effect that the manufacturers should send out a car of their products, all over the country and particularly in the West—this car to be accompanied by a railroad man, a moving-picture man, a manufacturer and two capable women exhibitors. Moving-pictures of the cotton goods exhibit could be shown at any of the moving-picture houses free of charge, the day preceding the arrival of the car in each town, with the announcement that at a given place the car would be stationed and make an exhibit free of cost, and then the car could stay in the various towns any length of time that might be thought advisable. I firmly believe that numbers of people all over the country would adopt the use of cotton materials if they knew more about them. The West seems to know very little about cotton goods as compared with the South and East. - The railroads would probably haul this car free of cost, if our two great associations would stand the expense of equipping same—which I estimate would be comparatively small; from $10,000 to $15,000 for a campaign of education for four months.

Along this same line, I quote from a letter written by Mr. Herbert N. Casson (an American man), who is the London correspondent of Henry & West, Bankers, of Philadelphia. He says: "What is the matter with the United States? Why are the American factories not running night and day? Why are the railroads not opening up new territories and getting ready for the millions of immigrants who have already made up their minds to leave Europe as soon as the war is over? Why are there not fifty American drummers in London right now, trying to sell $2,000,000 worth of American goods in place of the goods that were bought last year from Germany and Austria? Why have advertisers become quitters, just at the time when their advertisements were most needed and most effective in cheering on the business forces of the United States? If I could afford it, I would charter the Mauretania and Lusitania, and convey a party of 5,000 American advertisers to Europe for a trip of education. I would give them a week in London, a week in Paris, and a week in Antwerp. I would let them look at the United States from the scene of war. I would give them a look at *real trouble*. I would let them see trains, ten at a time, five minutes apart, packed with the maimed and the dying. Then, when they began to understand to some slight extent. the magnitude and awfulness of this war, I would say to them: 'Now go back and appreciate the United States. Realize your opportunities. Don't start digging trenches when nobody is firing at you. Don't fall down when you have not been hit. Don't be blind to the most glorious chance you have ever had in your lives. Go back and advertise. Get ready for the most tremendous business boom that any nation ever had. Build your factories bigger. Train more salesmen. Borrow more money. Go ahead and thank God that you are alive and that your family is alive, and that you are living in a land that is at peace, at a time when nearly the whole world is at war.'"

BETTER ORGANIZATION NECESSARY.

Many of the commission merchants in the large cities, and the vast majority of the cotton mill presidents (most of whom I know intimately) are safe, sane and conservative men, and for this very reason it does seem to me a great pity that our business is being conducted in such an unsatisfactory and haphazard manner, with absolutely no unanimity of action whatever on the part of these great interests, representing as they do, an enormous number of stockholders, four hundred thousand employees and many millions of dollars, and in its wide interests being one of the greatest lines of business in the United States. Therefore there should be, there ought to be, and there must be a change in the prevailing conditions. The commission merchants should form an organization for mutual advantage and protection, and there should be a more closely knit organization among the mills—and then probably a mutual organization between the mills and their agents, and a firm determination on the part of everybody concerned, that the mills must make a living out of their enormous business, and properly take care of their stockholders, employees and others deeply interested. I believe that sensible, conservative men on both sides of this controversy are anxious to see all of this come about. In addition to all this, let us adopt suggestions along the lines as contained in the extracts from the splendid letter which I have just quoted—urging us to go forward and take part of this export business which is lying right at our doors and waiting on us for its development.

Now that I have finished with all of these matters, some of which seem to be in a discouraging tone, I want to say without any hesitation that I am an optimist on business for the future. I believe that ultimately this war will result in tremendous business for the United States, and that everyone who manufactures anything, will have all that he can do.

Finally, may I take this occasion to thank the officers and members of the Association for the very cordial support they have given me during the past year, and to assure them that while the work has been strenuous, it has been a work of infinite pleasure because it has brought me into association with so many capable and interesting men. This is a great Association but it could be made greater, if we would bring ourselves into closer association with each other on all matters of mutual interest—especially the matter of the cost of goods, and while this would naturally differ with some mills in some locations, it would be easy enough for the manufacturers to know when the price of goods reaches a point at which to sell would mean no profit (or certain loss), and we should formulate some plan to guard against this situation. I would be the last man in the world to advocate anything which would be improper or illegal—but "self-preservation is the first law of nature." If we could unite the various interests of our business and uphold the hands of the new administration which will succeed me, and make an earnest effort to abolish some of these trade abuses, in my humble judgment we would emerge from the gloom of depression and the shadows of hesitation into the sunlight of hopefulness and sound business principles.

At the conclusion of the president's address, T. H. RENNIE, president of the Pell City (Ala.) Cotton Mills, a close friend and former business associate of President Hickman, went forward and presented on behalf of the association, the suitably inscribed gold medal with which the association honors its retiring presidents. President Hickman acknowledged Mr. Rennie's presentation address and thanked the association for the honor conferred upon him.

The next item on the program was the "Possible Increased Use of Electrical and Pneumatic Forces in Textile Machinery" by FRANK NASMITH, Manchester, England. Mr. Nasmith was unable to be present and the paper was read by title and ordered printed in the proceedings.

The condition of the present dyestuff situation was then discussed by E. C. KLIPSTEIN of New York, who presented an interesting paper on that subject. This paper will be found in the Dyeing, Bleaching and Finishing Department of this issue of COTTON.

The next address was on "General Business Efficiency in Connection with Cotton Mill Management," by J. T. ROSE, of Atlanta, treasurer of the W. R. C. Smith Publishing Co. The address follows:

General Business Efficiency.

The value of the products manufactured each year in the United States is $20,672,000,000 as against the value of all the products of the farm of $8,926,000,000. By comparison, the value of the manufactured articles exceeds the value of all the products of the farm including animals, by approximately 2½ times.

The number of persons employed in the manufacturing industries is 7,678,578 as against 5,865,003 farmers. The amount of money expended by the government in development work to assist the manufacturers in the marketing of their goods is $160,000 and the amount of money appropriated and spent to assist in the development of agriculture is $5,000,000 a year. This $5,000,000 expended by the Secretary of Agriculture in development work, increases the products of the farms some $300,000,000 yearly, which is a handsome return on the investment.

We, therefore, as manufacturers, do not want the agricultural appropriation reduced, but we do want the appropriation of the Department of Commerce increased. Think of an industry whose products amount to approximately $9,000,000,000 yearly receiving cooperation from the government to the extent of $5,000,000 and showing an additional return of $300,000,000, while our great manufacturing industry, whose products amount to over $20,000,000,000 receiving government cooperation to the extent of $160,000 for development work. It is our fault if we do not get proportionate support for our industries through our representatives in Congress, provided, or as soon as, manufacturers become persona-grata and active in municipal, state, and national law-making affairs.

Of this total value of manufactured products of approximately $20,000,000,000, over $12,000,000,000 is the value of the raw material, and over $8,000,000,000 is the enhanced value by the process of manufacturing, of which amount $3,430,000,000 or 42.5 per cent is paid directly to labor.

A STATISTICAL COMPARISON.

Of the two great industries of the United States, textiles and steel, a comparison shows them to be almost equal in all essential respects, the two comparisons being as follows:

Number of wage earners in
Textile—1,440,000, or 21.7 per cent of all wage earners.
Steel —1,030,000, or 15.5 per cent of all wage earners.
Value of products produced in
Textile—3,054,000,000, or 14.8 per cent.
Steel —3,163,000,000, or 15.3 per cent
Added value of product by manufacturing
Textile—1,312,000,000, or 15.4 per cent.
Steel —1,361,000,000, or 16 per cent.
Increases in last ten years of census report:
Number of wage earners in
Textile—40.6 per cent.
Steel —37.8 per cent.
Increase in value of products, in
Textile—87.6 per cent.
Steel —74 per cent.
Increase in added value of manufacture, in
Textile—79 per cent.
Steel —66.7 per cent.

These two industries aggregate in value 37.2 per cent of all of our manufactured products.

So, our cotton manufacturing association is an important part of an industry which employs more wage earners than any other industry in the United States, and in which during the last ten years covered by the United States census, the number of wage earners increased 40.6 per cent, the value of the manufactured products increased 87.6 per cent and the added value of the products by manufacturing increased 79 per cent. Omitting the value of the raw materials in both textiles and steel, a comparison of the two industries shows that in the cotton industry salaries amount to 2.6 per cent and wages amount to 24 per cent of the total value, while in the steel industry salaries amount to 2.9 per cent and wages amount to 18.3 per cent, or a difference in executive and clerical cost of 3/10 of one per cent, and a decrease in wages of 5.7 per cent; a net gain in favor of the steel industry of 5.4 per cent. Remember that this comparison is good because in the two industries the number employed, the value of the products, and the increased value in manufacture, are approximately the same.

Would it pay the cotton mill industry to increase its executive and clerical expense, if need be, in an effort to decrease its wage expense, and if so, for what shall this expense be used?

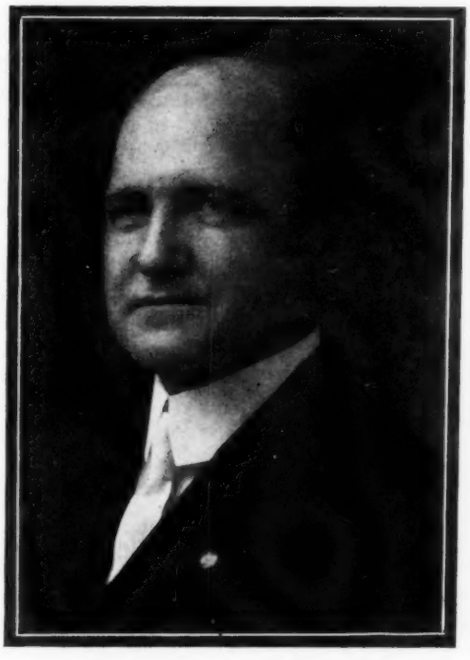
EFFICIENCY METHODS SUGGESTED.

First, by securing the services of the best auditor efficiency individual or firm you can find, who is an expert in his line of business the same as you are in yours. He, or one of his men, should remain daily and continuously at your plant for three months, six months, a year, or longer, depending upon the size of the plant, the work to be done and the cooperation or resistance he may receive from your men or yourself or both. This man will show you the results he has secured for other mills, and you will have to assume that he knows his business, and let him get results for you in his own way. Neither you nor your your men may know the future plans he has in mind. You are both much in the position of a patient and a nurse with the doctor in charge of the case—the result depends upon how well you obey the instructions of the doctor. As the head of your mill, you must first prepare yourself to give up many of your cherished ideas, for the Efficiency Man is very sure to have very strong opposition, at first, from the men under you.

The average general superintendent and superintendents all but resent the idea that a man not directly in the cotton mill business can come in, who admittedly knows less about the mill business than they do, and show them how to do the same work with fewer men, or more work with the same number of men, do it easier, and both they and their wage earners be better pleased with their work and the results obtained. Yet, just such is being done every day, and can be done in your mill, if it has not already been done.

An increase in production of 43 per cent; a decrease in unit cost of 28 per cent; and an average increase in wages of 18 per cent, is the record of one mill, where no new machinery was installed, no men in executive positions were asked to resign, no wage reductions, but on the contrary wage earners shown how to earn more money and are receiving an average of 18 per cent more, physical fatigue has decreased, and the percentage of changes of employees has decreased some 75 per cent.

The lack of information regarding wages and conditions



J. T. ROSE, ATLANTA, GA.

in cotton mills makes these subjects excellent stumbling-blocks for the misinformed, and good bogies for the agitators. If what both of these classes want are better wages for better results, it can be solved by prompt action on your part without the action of agitators and state legislators, and decrease instead of increase in cost of production.

The question of how this can be done is too comprehensive to attempt to answer in the time allotted for this paper, but a few essentials may be mentioned:

SOME OF THE ESSENTIALS.

First, expert investigation at all points in the process of manufacture to discover waste time and material. You have men and women in your mill who are wasting both, not because they intend to do so, but because they have not been shown how to avoid such waste, nor have you

made it to their interest not to waste. After expert investigation, and when you have established standards for their guidance, then by a system of bonuses, not fines, but bonuses, make it to their interest to exceed the minimum standard established.

Second, After standards have been set, organization must be perfected to carry those standards into effect. This, you say, means additional clerical force and you can't afford the expense. Can you afford a 24 per cent wage expense when it should be 18 per cent or less? Standards will require records which are the tell-tale of increased or decreased cost and production. The use of these complete records may require the establishment of departments, which have heretofore not been established in cotton mills. For instance, a planning department is one of great importance. Its general purpose is to know from reports what all of the departments are doing, and what they have promised to do, thus harmonizing all the departments, preventing delays from one to the other, letting superintendents know one, two, three or more days in advance the work that is coming to them. In this way excuses and trying to put the blame on someone else or some other department will cease, men in authority will have to carry the load, they can properly think out and plan their work in advance, and workmen will not be forced to idleness and indifference. Other departments similar to this would be established, each with its particular constructive work to do.

Third, The selecting of the best men and women in the organization and the sifting out of the less efficient ones.

Four, Compensation. This should be either on the basis of a daily wage for a fixed minimum production plus a bonus for extra production; or, and preferably, it should be plus a bonus in addition to the regular price on production in excess of the minimum.

Leave the bewildering questions as to how these things are to be done, how records are to be kept, how payrolls can be made up, and other perplexing questions that may come up in your mind to those whose business it is to know how to do these things, for they do know how and it can be done with decreased cost to you and increased wages to your employees.

Five, The training of your men to study your local conditions and perfect in detail the system of origanization. When the labor of the Efficiency Engineer has been completed your real work will have just begun. The education and training which you and your men will have received, and the persistency with which you make use of the new system of organization by perfecting it and adapting it to your needs, will largely determine the benefits you are to derive. Complete and accurate reports from all departments remove guess-work on your part, require men to make daily records and reports instead of weekly, monthly, or yearly reports, and enable you to commend them at the time when such commendation will be most effective, or suggest ways of securing better results to those whose records do not merit favorable commendation.

THE USE OF COMMITTEES.

This efficiency system carries with it the use of both standing and special committees, the number and scope of which cannot be outlined here, but the general purpose of which can be briefly stated. Assuming the worst condition—that you do not want the suggestions and judgment of your superintendents, but want them only to carry out your instructions, you will find that if they have been present as a committee when you arrived at your decision and know the causes that produced your decision and the objective points you have in mind, they will be able to better understand and execute your orders.

But the old plan of instructions does not secure the best results and should be abandoned in favor of committee decisions, even though you finally have to be a majority of the committee.

The question of cost accounting will come up. Does your superintendent know the origin and distribution of every item entering into the cost sheet submitted to him by the cost department, and has he been consulted before any purchases or repairs are made, the distribution of the cost of which will effect his cost of production? Either he is entitled to consultation and the right of making suggestions in these matters, or he is not qualified for the position, and if you inject items into his cost sheet without his knowledge, you will not get his most constructive efforts.

In your monthly cost sheet, do you show regular seasonable repair bills as of the month or months in which the yearly repairs are made, or do you set up a fund by charging a fixed amount per unit of production monthly so the same charge against production cost is made in months when repairs are not being made as when they are being made?

Items in a cost sheet other than those affected by operations from day to day should become a uniform fixed charge monthly. In this way any change in production cost for better or worse can be seen at a glance on the monthly cost sheet, and the responsible man can have no defense.

PURCHASING SUPPLIES.

In the purchasing of material, other than large items, such as cotton, fuel, and power, do you arbitrarily buy supplies, put them in the store room, and send the memorandum to your superintendent? If so, you are omitting the personal element of putting the man who is responsible for the use of such supplies behind them, with the feeling that they must be used to the best advantage and not wasted or abused. Supplies from the store-room are charged to his cost of production as they are withdrawn, and he should at least be consulted regarding all such purchases, in fact, the supply purchasing department should be under the general superintendent as operating manager.

By arbitrary purchasing, you also lose the knowledge and experience of the man who uses the material and knows its comparative value better than you or your purchasing agent. Too many times price, personal friendship, or some other unsound basis is used for making purchases. All orders for supplies should, of course, go over your desk for approval, and such approval should not become a mere matter of form.

Sales organizations, acounting, traffic, and other departments would receive careful and detailed consideration in an efficiency organization. True efficiency is the effective way to meet, in a constructive manner, the demands of the agitator, whether he be commercial or political, without having to deal with him. You owe the most economical and efficient management possible to your stockholders, your directors, and yourselves, but even more so, you owe it to those under you, who of their own volition, both by lack of authority and ability cannot increase their productiveness and compensation but must rely upon you to make these things possible for them. Think of your responsibility, both to those who have their money invested (which

is accumulated labor on which they are entitled to the best possible returns) and to your present wage earners who are also entitled to the best possible returns for their daily service.

The president of the mill, the percentages of which were mentioned, and which in dollars last year aggregated a saving of $92,000. to the stockholders and a wage increase of 18 per cent to the employees, bewails the fact that so many hundreds of thousands of dollars should have been sacrificed and so many thousands of employees failed to increase their earnings because he did not begin eight years ago when he took charge, instead of waiting some six years before egging into the real question of efficiency in mill management. He employed a firm of efficiency engineers, and had the services of one man continuously for a number of months, and from time to time the services of two men.

You can do much without such services, and possibly by much reading and study on your part accomplish the same results, but in a much longer period of time.

If this paper arouses you to the point of investigation and action towards greater efficiency in cotton mill operation, it will have accomplished its purpose.

After the address by Mr. Rose, the meeting adjourned.

Promptly at 2 o'clock all delegates left the hotel under guidance of officers of the Memphis Terminal Corporation, walking to the union station where a special train awaited to carry them to the immense plant of the

Memphis Terminal Corporation.

The great storage and compress plant of this corporation covers an area of 170 acres, representing 82 city blocks, each 300 feet square. The corporation owns and operates its own railroad terminal, consisting of a special sparkless locomotive and 9½ miles of standard gauge tracks within the boundary of the plant. These terminal tracks have direct connection with four of the railroads entering Memphis, and with all other railways through the Union Railway Co. The cotton concentration capacity of the country within 150 miles of Memphis averages over two million bales.

That readers who were unable to be present may have an idea of the immensity of this plant a few figures will be given. The cotton is unloaded at covered "inbound" platforms, of which there are two, 30 feet wide and 900 feet long. These have an unloading capacity of 4,000 bales of cotton in ten hours. Each bale is swung on an independent trolley and is carried to the receiving courts without ever touching the ground.

Each bale is tagged with a suitable letter and color, designating the warehouse and the street on which it is located. As long lines of these inbound bales on individual trolleys are pushed to the receiving court by mule power, a switchman cuts out and switches to their respective streets, as indicated by the colors, the various bales in the different consignments. An average of 6 2/3 bales per minute pass this switchman in a ten-hour day.

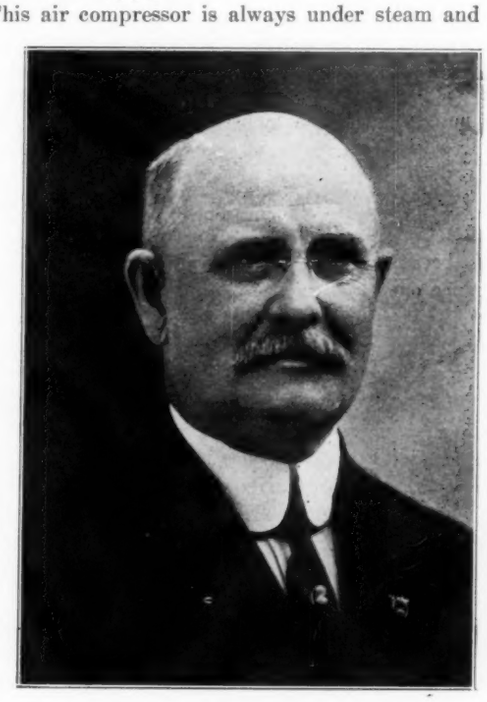
The receiving and delivery sheds and courts are all of skeleton steel construction, with corrugated iron roofs. The warehouses are of reinforced concrete, suitably sprinkled.

There are five lines of trolleys that concentrate in the rear of the press rooms and owing to the slight gravity incline and the ball bearing trolleys traveling on a mono-rail, very little energy is needed to send the bales to their destination. One mule easily pushes 100 bales.

The loading platforms on the south side of the press rooms are separated by 12-inch concrete walls, isolating each press room and its platform. Passage is had through these walls by means of one 12-foot opening in each, protected by double, ironclad, fused, automatic doors, which are kept closed when not in actual use. The loading platform is 1,200 feet long and accommodates 55 cars at one time.

The fire fighting equipment, including sprinklers and hose, is supplied with water by two underwriter pumps, each of 1,000 gallons per minute capacity. These pumps draw from a concrete reservoir with a capacity of 270,000 gallons. They have another source of supply in an artesian well that naturally flows 700 gallons per minute. This natural flow of 700 gallons can be accelerated to 2,500 gallons per minute by means of an air compressor and an air lift pump, thus furnishing the reservoir and fire pumps with an inexhaustible supply.

This air compressor is always under steam and the increased flow may be secured in four minutes and three seconds. Connection is also had with the Memphis city water supply.



PRESIDENT-ELECT SCOTT MAXWELL.

The Trip on the "Idlewild."

After following the cotton through to the delivery platform, which is on the opposite end of the big plant from where it is received, the special train was found waiting to take the delegates back to Memphis and to the new excursion steamer Idlewild. This was a big, three deck steamer, providing ample seating capacity on the two upper decks. The lower deck was devoted to the necessary machinery and the refreshment stand, and from this latter issued lines of waiters bearing sandwiches, pickles, liquid refreshments and cigars until the entire three decks contained a happy, well fed, contented lot of mortals, who were thoroughly enjoying the 15 mile trip down the grand old Mississippi.

The second deck was provided with a spacious dance saloon, from which the strains of orchestral music floated outward. This was too much for the younger members of the party and the delightful floor was soon covered with enthusiastic dancers. As the twilight began to deepen, the desire to sing began to make itself felt and it was not long

before a goodly chorus had gathered. These were led by a well known gentleman of Quaker extraction, who has been mentioned before in these columns as a singer *par excellence.*

The Idlewild again reached Memphis about 8 o'clock, where the big party divided into smaller groups for the evening's pleasure.

Owing to the unavoidable absence of Charles T. Plunkett, the lecture on South America, which was scheduled for Tuesday evening, had to be omitted.

The Second Day.

At 10:20 A. M. Wednesday morning, President Hickman called the meeting to order for the second session of the convention. After making some announcements, he introduced KENNETH R. HOOKER, of Cincinnati, who made an excellent and interesting address on "Trade Abuses and a Remedy." Mr. Hooker was so thoroughly at home with his subject that it was a distinct pleasure to hear him. He said in part:

Trade Abuses and a Remedy.

"There is a strong element in the make-up of the average business man which, in so many cases, enables him to live through the pleasant days of prosperity with but little serious thought of the times of adversity which have gone before, and without making full preparation to weather the storms that are as sure to come as death and taxes. Perhaps it is because we are so eternally hopeful that we too easily induce ourselves to believe that each panic or period of general depression will be the last one during our days, or that next time our own particular trade will be the one to be favored by the ill wind.

"So far as the cotton manufacturing industry as a whole is concerned, it has failed utterly in certain essentials to profit from past experience, and has benefited but little or not at all by the very expensive schooling received after the panic of 1907. Within the past eight months there has been sufficient analogy to the conditions existing in 1907 to forcibly bring our common troubles once more to mind and to justify, if not demand, that certain evil practices existing in our trade shall be again and finally considered to the end that they be moderated or eliminated.

"It will not be amiss to mention the more common forms of abuses in the cloth trade in at least a general way, giving the place of honor to the mills, then taking up those which are usually uppermost in our minds—those which we choose to believe are, without exception, unjustly forced upon us by the other fellow.

"It may be safely said that the occasions are rare indeed when a mill enters into a contract to deliver goods without a full and sincere intention to perform its part in accordance with the letter and spirit of that contract. But experience has shown that in the past individual mills have been so affected by changes in conditions that their actions have given buyers ground for the belief that they have been not unwilling to force rather more than their share of profit or to evade their share of loss.

"To illustrate: Mention has been made of a mill which, at profitable prices, sold almost simultaneously to two separate houses its entire production of a certain class of goods. This may have been an oversight at the start, but if so, it might have been confessed and corrected without serious consequences. It so happened, however, that through a peculiar chain of circumstances, the buyers were able to compare notes, and as a result, both cancelled their orders. By that time the market had declined, but you will probably agree that the mill got its just desserts.

"By far the greater number of complaints are from miscalculation as to production and consequent disappointment to the buyer on account of unsatisfactory delivery after substantial price changes. In such cases, and where branded or ticketed goods are sold, it hardly satisfies the buyer to receive the necessary number of bales or cases when the number or pieces or the yardage in each has been reduced below the standard after a market advance. On the other hand, he is more than likely to complain when, under reversed conditions, the packages are larger than usual.

"No doubt, in the experience of any commission house instances have arisen which indicate great carelessness in the matter of samples, and excepting the delivery of light weight, off color or imperfect goods, there is hardly a more direct road to cancellations and trouble in general than is created by sending out samples which are not in accordance with the specifications and with the goods which may be delivered later. At times mills have made important alterations in the quality and have failed to notify their agents promptly, allowing them to sell by older samples and of superior quality. This is a fruitful source of trouble and only one of the instances which might be used to illustrate that all mills do not always lend their agents the full measure of cooperation which is so necessary to their mutual welfare.

"One of the services which the selling agent must render in return for his commission is the adjustment of all claims and controversies, and few mills seem to make proper allowance for the difficulties of such situations, or the sometimes unnecessary expense which the selling agent sustains.

"Claims and losses growing out of the cancellation of orders because of delayed deliveries on a declining market are the most common nuisance in our trade, but the cause is usually found in a miscalculation of the mill's production.

THE TRADE ABUSES OR EVILS.

"Turning to the trade abuses or evils which are forced upon both the mill and selling agent, or to which both of us submit sometimes only too readily, we find some unreasonable practices which have been suffered so long as to become almost trade customs.

"*Freight Allowance.* Within the last few years there has been a strong tendency toward establishing fixed allowances to the several sections of the country, but there is still much to be hoped for. Even at this time it is almost impossible to forsee what excessive allowance may be made, particularly on shipments destined for the West. Quotations to other territory may carry an allowance of the actual rate, New York rate, or in not unusual cases, an allowance is offered which would carry a shipment well beyond its destination. On certain lines of goods the sellers have managed to standardize the allowance either through direct cooperation or through tacit understanding, but there is room for much improvement.

"*F. O. B. Sales.* Growing out of the practice of delivering certain classes of goods from local warehouses comes the demand from buyers that even direct shipment from mills shall be delivered at destination at seller's risk while in transit and billed upon arrival. A refinement of this evil is the demand for cartage allowance, and in both of these exactions certain buying houses have forced their points successfully.

"*Cash Discount.* Custom has defined rather exactly what lines of goods shall be sold with a cash discount, and the maximum length of time the buyer shall be allowed in which to pay his account. Abuses under this head are of daily

occurrence. Passing over the small, weak buyer we find that mills or commission houses not infrequently risk the creation of bad precedent by giving an unusual discount, or by extending the term of payment by extra dating. Over-anxious sellers have even offered a cash discount or more than the usual ten days on plain cloths upon which you all know the orthodox terms are net ten days. Similar disturbances have been caused not infrequently in all other lines of fabrics.

"*Price Guarantee.* This practice must have found its way into the textile trade from some other industry where raw material cost nothing or did not fluctuate in price. A prominent student of business ethics has said:

"The guaranteeing of prices is one of the greatest evils now existing, and which has existed for years in certain branches of the textile trade which affect the business as no tariff ever could."

"*Delayed Claims.* It is universally conceded in the trade that no claims may be recognized after goods are cut or converted, nor in any case unless the claim is made within a reasonable length of time after delivery of the merchandise. Nevertheless it is fair to assume that every house has more than once received and eventually made allowance on, claims which were outlawed by the agreement just stated, and in connection with which there were no extenuating circumstances. This has been condoned because it was a matter of policy. Stated bluntly, the seller is afraid to assert his rights and stand on them.

MEMPHIS SKY LINE FROM THE RIVER, REPRODUCED FROM THE MENU CARD AT THE COUNTRY CLUB BANQUET.

"*Special Allowances.* Principal among those is the practice of privately selling first quality goods with the understanding that both order and invoice will specify 'seconds.' Rarely if ever is anyone deceived, as the buyer, just to show what a "foxy" fellow he is, generally imparts the confidence to every one he meets, and a misunderstanding as to the market for that article is a matter of course.

"*Blanket Orders.* There is perhaps nothing called a contract that is more like a rope of sand than an order calling for several descriptions of goods, none of which is specified in detail at the time of purchase, and the delivery of which is to be made 'as wanted' during a period extending over several weeks or months. With good luck and a steady market, you may complete such an order, but under other conditions, it is difficult of enforcement. In any case, it must be an abomination to the mill.

WHAT HAS BEEN DONE.

"The American Cotton Manufacturers' Association gave a large share of its attention to the subject of cancellations during the period of depression and radical price changes which followed the panic of 1907. At that time, the necessity for a proper form of sales contract was thought to be paramount, and a committee was appointed by the National Association of Cotton Manufacturers and with men representing the converters and other important buyers of cotton goods.

"After exhaustive study, a uniform sale note was submitted to, and later was approved and adopted by, the American Cotton Manufacturers' Association in 1910. This sale note was calculated to give to the buyer and to the seller the full measure of protection to which each was entitled, and that it afforded this protection has never been questioned. Information is lacking as to the concensus of opinion of the mills toward this sale note, but there is no evidence to show that it was ever consistently used by the commission houses. The reason in either case is easy to find—no manufacturer or agent, when wanting business, will at that time attempt to force a buyer to subscribe to what the buyer might consider are exacting conditions, especially when the seller knows, or has reason to suspect that a competitor will gladly accept the order, often under a loose verbal agreement, without even requiring the buyer's signature.

"It is during periods when prices are declining that the unreasonable exactions of buyers become most pronounced, and it is at those times that the unscrupulous buyer makes unjust claims, or attempts the cancellation of orders for the most frivolous reasons. If the selling house refuses to allow the demands, a lawsuit is a prospect, but in any event, relations between the two are strained, and business between them is at an end. The seller has lost a good (?) customer, but the buyer has lost nothing for he still has an ample number of sources of supply and may even obtain through some other house the very mill's goods over which the controversy had arisen. It has been done and the chances are that the mill was none the wiser.

"The all too frequent troubles of the mills which grow out of contracts cannot fairly be attributed either to the lack of a high order of ability on the part of the selling house or to its loyalty to the mill. The cause lies in the relations between selling agent and buyer, but, more particularly, in the relations of the several selling agents of the whole community to one another.

"In no instance such as those mentioned, would the buyer for one moment have risked permanent damage to his standing had the selling houses been organized as a unit to combat the imposition of unfair practices. As a bit of left-handed justice, let us concede that the buyer of the class stated, and according to his own lights, had some rational basis for pressing his demands. He felt reasonably certain that his closest competitors, being built on the same plans and specifications, were at the time putting over bits of business in the form of claims and cancellations, and it would not do to let them hold that advantage. This method of doing

business is the direct result of an antiquated system in the 'primary' market, and it may be truthfully said that this class of buyers is not responsible for laxity in that quarter.

A LOGICAL SOLUTION.

"A careful study of conditions prevalent in New York and other important markets convinces one that the logical solution of the problems which constantly confront us will not come through the continuance of a regime in which blind prejudice, unreasoning competition, and the heaviest bank roll play the leading parts. The solution will not come so long as each house lives in an air-tight compartment, but it will be necessary that a common ground be found out in the open, upon which the several houses may meet for the free interchange of views in mutual confidence, and for the enactment of such proper regulations as will control the abuses of the trade—not only those of the domestic markets, but of the export market as well. In a word, the situation demands a closely knit association of all of the commission houses to be organized on clean, legitimate, constructive lines. This must not be a one man organization, it must not be a secret society, but every commission house should be free to join and enjoy permanently the full privileges of membership unless removed for cause.

"The general principles of organization are not open to criticism, as the great and ever growing number of successful business associations in all branches of industry, both here and abroad, give ample proof of the soundness of the foundations upon which they are built. The power for good of a highly organized body was never more strongly demonstrated than last August. It is impossible to imagine what might have happened if at that time the cotton and financial exchanges of this country had been in the hands of a demoralized mob, in which each individual was working blindly for his own interest. Turning to the textile industry, we find a multitude of organizations all constructively engaged in promoting the interest of their members, or striving to alleviate unsatisfactory conditions. The cotton mills are well organized into local and state associations with the American Cotton Manufacturers' Association as the parent body. The benefits derived from each of these are too well known to need explanation.

"One example illustrating the benefits of organization as applied to the local body is shown in a town in the South where there are more than a dozen mills. Many of these mills are in direct competition on certain constructions of cloth, and they all compete in the labor field. Disregarding these facts, this group of mills purchases the common supply of coal through a committee, and the individual mills profit through a lower coal cost than is possible for competing mills in other similar localities.

"Among the buyers of cotton goods the advantages of cooperation are so fully appreciated that associations have long since been formed by the converters, garment manufacturers, and many other important branches of trade.

"The cotton goods commission merchants handle perhaps ninety per cent of the product manufactured from three million bales of cotton by approximately thirteen million Southern spindles; yet this tremendous factor in the industry is the only important link in the entire textile chain which is not organized today. The fact that problems are constantly arising which directly affect both the welfare of these houses and of the mills they represent is of itself a sufficient reason for correcting this condition. The commission merchants occupy a position in the middle ground with responsibilities to both mill and buyer, yet they can not as a body meet an association from either side and discuss topics of common interest. These questions are by no means only those of self-defense. As an illustration: Uncertainty regarding the dyestuff situation, which continues even at this time, not only among the mills but among the trade, could have been mitigated had there been means of collecting and dispensing authentic data.

It is evident that the commission merchants do not entirely fail to appreciate the advantages of association. They have tacitly endorsed the principle, for with the exception of but one house of prominence, every commission merchant of New York is a member of the National Association of Credit Men. That means that when the safeguarding of actual money is concerned, co-operation is recognized as being essential. Is it not as important that each house should know other particulars of a customer's make-up and past performances than merely the way he has paid his bills? Has he carried the other parts of his contracts, or is he prone to make unjust demands? Information of that character can be obtained satisfactorily only through a properly regulated and confidential bureau of a trade association, as no mercantile agency reports those details.

"The association idea is not new in the New York cloth market. The younger men appreciate its value, and through their Cotton Goods Association an earnest effort was made last spring to interest the older men, but, unfortunately without success. The reasons for this are left to conjecture, no logical or satisfying explanation having been given. It can not be fear of the Sherman Law, for it is too generally known that business associations are here to stay, and it is obvious that the law does not frown on the legitimate operation of such bodies when they do not tend to make for price agreement or control, apportioning of business, or other disciminations in restraint of trade. A convincing number of court decisions will be found supporting this statement.

"The Federal Trade Commission is a new factor in the situation which business—particularly big business—will have to reckon with. Although the mere rulings of this body will carry a tremendous weight, it is to be noted that enforcement may be had only through the action of the courts. That means delay and uncertainty which may be harder to bear than the evil from which relief is sought. On the other hand, arbitrary changes or decisions affecting an entire industry must be fought by that industry as a unit. It is not to be expected that an individual would champion the cause of the cotton goods trade should matters be under consideration by the Trade Commission which might adversely affect at the same time the interests of both commission houses and mills. The best efforts of a self-supporting and a one hundred per cent. co-efficient organization will be required.

The fact that there is a wide diversity of interests in the cotton goods trade need by no means be considered a vital objection, as the basic principles involved are the same in all lines, and the adjustment of details peculiar to any branch would naturally be left to those most familiar with them.

"The outside world is in the midst of the most destructive war known to history and from which even the victorious nations will emerge with crippled industries and exhausted resources. Opinion differs widely as to the conditions which will exist in this country when the war is over, but it is

certain that our industries will soon witness the dawn of a new era, even though the time of its coming may be measured in years rather than in weeks or months.

"It behooves us of the textile trade to forsake the methods which were up-to-date perhaps a quarter century since, and to prepare ourselves to enjoy to the fullest the prosperity that is bound to follow. Let us begin by establishing a uniform standard of trade practice."

The next address on the program was on agricultural and mechanical college work by PRES. D. H. HILL of Raleigh, N. C. Mr. Hill discussed in more or less complete detail the work of the useful institutions of one which he is the head, and suggested greater cooperation on the part of the mill men.

The address on the development of export trade in cotton goods by M. P. MOSELY of New York, was read by title only, owing to the absence of Mr. Moseley. Extracts from this paper follow.

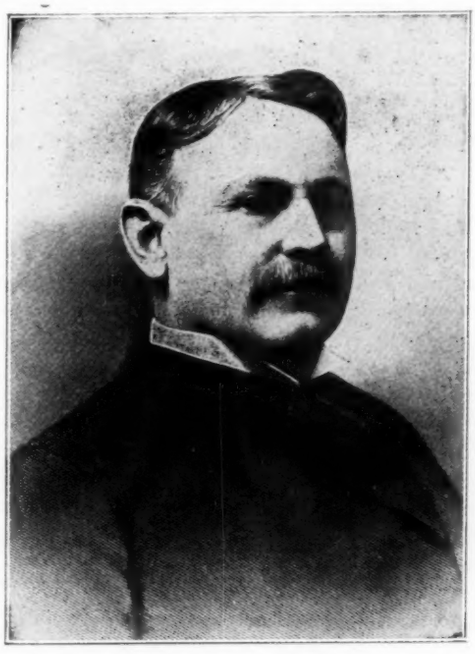
Development of Export Trade.

When the first cotton looms were started in the United States it was hardly thought by the rest of the world that an industry would develop within practically a century which would eclipse that of any other branch of the textile trade; but such has been the result of the progres, energy and determined business efforts of American manufacturers. That your Association typifies the American spirit is shown by the fact that you are not only eager to develop the domestic trade to its utmost capacity, but are alert to the possibilities of securing an increasing share in export business.

The first essential to selling goods abroad is a sincere desire to give service. This presupposes the intention of the manufacturer to sell reliable merchandise and not try to foist inferior and undesirable merchandise upon foreign buyers in the hope of being able to "get away with it." This does not spell repeat orders and makes an excursion into the foreign trade fields expensive instead of profitable. The foreign nations which have been suddenly thrown out of the running for export trade, have always been scrupulously careful to meet the wishes of their customers and so it has come to be axiomatic with the English, German, French and Italian manufacturers of textiles to give the buyer what he asks for, made up in the form he wants for his local trade and packed, shipped and billed according to the custom of the land where the goods are to be passed on to the final consumer. This seems to be the rational way to invite an increase in business and to oppose it is merely to attempt to do in foreign trade what cannot be done in the domestic market, which is right under the nose of the manufacturer and where he is supposed to know all the turns and twists of competitors. Another important step to take in going after foreign trade is to find out how the merchandise you desire to sell can be handled in the foreign market. This requires an analysis of conditions just as going after new business in the home market.

Banking facilities have been so improved within the last year by the steps taken to establish branches of strong national banks throughout South America that the manufacturer is now in a position to have his sales settled in New York funds. This is a radical change from the old method which has prevailed for several centuries, of clearing everything through London, and makes the American manufacturer actually independent of foreign financial control. Another matter to which any manufacturer who contemplates entering foreign trade must give due consideration, is that of adopting trade names in the language of the nation to which they desire to sell goods. This has proven very effective in the South American trade where tickets on cotton goods have been made to possess actual trade value and goodwill. It is only a matter of office routine to be able to designate a certain percentage of the mills product for export trade and when packing the goods to put foreign language labels on the goods which are intended for the Orient, to have them marked by appropriate designations in Chinese, Japanese or whatever language is predominant in the countries to which they are to be shipped.

The tariff regulations and import duties in foreign countries have to be carefully considered, because by a misunderstanding of them merchants are often heavy losers. It is often found that an order for broken lots where a few goods of high quality are ordered and the larger percentage of an order is for merchandise of a lower grade, if the goods are packed in bulk and as the invoice shows that only five or ten per cent represents the high grade merchandise, they will have to pass under the higher duties prevailing on this small percentage, as the duties are based upon the goods of highest value. A little care in filling the order would



W. A. ERWIN, WEST DURHAM, N. C.

have separated these items and permitted the merchant in the foreign country getting his goods on a more favorable basis. It is attention to such details that makes the English, German, French, Italian and other foreign exporters successful. While it may sound trite to say that the American manufacturers disregard the requests of foreign buyers to have bales split and packed in specified ways so that transportation may be facilitated, on the other hand it is this consideration which nearly always determines the placing of orders. The rigid trade requirements of a domestic market cannot be imposed upon foreign buyers. This is as true in sending merchandise into foreign countries as it is in trying to secure rates of exchange on money. The value that the nation decides it will pay must determine the basis of exchange and so with merchandise the buyer has the privilege and prerogative of saying how his goods shall be delivered.

I have made a very thorough canvass of the markets of the world for purposes of ascertaining what classes of goods American manufacturers can send into foreign trade and the conclusions I have arrived at are not based on theory, but the absolute, written testimony of thousands of foreign trade agents, Consuls, secretaries of foreign trade commissions, purchasing agents for foreign governments and commercial brokers who are keen in their efforts to get merchandise. There are literally thousands of lines of goods that can be sold abroad at a profit. The year 1914 will be blazoned on the trade calendar hereafter as the period which marks the beginning of the era of American predominance in foreign trade. No man who carefully considers the unprecedented disruption of business in continental Europe and the suspension or serious crippling of business to the British Empire, can doubt that the United States as the third largest country in the world, with perhaps the greatest potential power and the leading neutral nation at the present time, must assume the responsibility of furnishing the urgent requirements of all nations.

Trade opportunity is not only knocking at our door but is pounding and clamoring for admittance. The letter files in my office in the past six months read like the records of a bureau of inquiry. Manufacturers are asking how they can enter the foreign trade, representatives from all sections of the world are writing us to know how they can buy American goods. This certainly is a situation which is abounding with business possibilites To you of the cotton industry I cannot refrain from saying that the greatest avenue of trade development lies before you in the matter of going after and getting foreign business on cottons. Bountiful Providence has given America the greatest cotton growing area in the world. Our mills are now superior to those of any other country and our capacity to produce any given construction of cloth, makes it possible for American manufacturers to "deliver the goods" when and where wanted.

There is no wizardy in trade comparable to action.

A man who writes often loses; the man who goes generally wins. If you have goods which you want to sell abroad go after the business. The first step is to introduce your name in foreign markets. This can be easily accomplished not only in the English language but in all of the trade languages of the world. The next step is to know, how to follow up inquiries intelligently and profitably. The next step is to have desirable merchandise to ship as per order and the next is to be able to make a price that will command trade. As previously referred to, the question of getting cash settlements in this country has been determined by the foresightedness of leading American banks, such as the National City Bank, the American Exchange National Bank, the National Bank of Commerce and others of a similar character and responsibility.

C. C. MOORE of Washington, D. C., was also absent and his paper on the sizing of warp yarns was read by title only. It will be found entire in the Cotton Manufacturing Department of this number of COTTON.

Reports of Committees.

In the absence of A. M. Patterson, Secretary Bryant read the report of the committee on textile alliance.

President Hickman, as chairman of the National Council, then read his report which was largely perfunctory, as a great deal of the work done is as yet confidential to the National Council.

R. M. Miller, Jr., chairman of the committee on Tariff and Legislation, made no formal report. The committee had agreed to ask the association to file a protest against the Palmer national child labor bill, and the goods branding bills introduced by Lindquist and Baker.

Reports of committees on trade abuses, duke warehouse plan, importation of foreign grown cotton and the foreign trade council meeting were read and approved. The report of the secretary and treasurer was also read and approved.

The following resolutions were reported by the resolutions committee and adopted.

Whereas, The interests of manufacturers and merchants of the United States, to the extent of their economic ability, require an equal right with those of all other nations to the trade of the world; and

Whereas, The United States has by expressed statement declared the principle of equal trade privileges to the great commercial market of China; and

Whereas, It is feared that influences for some years exercised upon China and now being brought to bear upon the Government of that country with increased pressure may result in a loss to citizens of the United States, manufacturers making goods suitable for, and merchants engaged in the trade with China, of the equal right to trade with the people of China; therefore be it

Resolved, That the interests of the foreign commerce of the United States require a new statement of the right of equal opportunity to trade in the markets of the world, and that, particularly as to China, the principle of the "Open Door," be asserted anew and in unmistakable terms; and be it further

Resolved, That copies of these resolutions be transmitted to the President of the United States, the Secretary of State, the chairman of the committee on Foreign Relations of the United States Senate and the chairman of the committee on Foreign Affairs of the House of Representatives.

Resolved, By the American Cotton Manufacturers Association, that as a result of one of the most impressive lessons of the great European war, the United States should adopt prompt and vigorous measures to secure the establishment by private enterprise of lines of American merchant steamers to the chief ports of the world so that this country may no longer be dependent for nine-tenths of its ocean carrying trade on foreign ships and foreign ship owners.

Resolved, That this association regards an adequate American marine as indispensable to the full development of American commerce and as an essential auxiliary of the national defense in time of war, and believes that by all proper methods these important facts should be impressed upon the American people and their lawmakers.

Resolved, That this association heartily endorse the action of the Horticultural Department in its effort to prevent the importation of the pink boll worm into the United States, and that we urge all manufacturers to agree to the proposition of the Department that all picker waste and motes from such cottons be burned daily.

Resolved, That a standing committee of not less than three members of the American Cotton Manufacturers Association be appointed to confer annually with the management of textile schools on their curriculum and other matters affecting the qualifications of textile graduates.

Referring to the suggestions made in President Hickman's address:

We think they are worthy of most serious consideration and most firmly believe that the time is now ripe when the manufacturers and their agents can get together on some sane and conservative basis and conserve the interest of the mills by guarding the prices of their products.

We would respectfully suggest, and heartily recommend that this be passed to the national council, and that they be urged to take immediate and prompt action.

Possibly the best way by which this matter could be reached would be to urge the agents in the large cities, both East and West to appoint delegates to confer with the national council on this subject.

We recommend that the suggestions of the General Managers Association of the Southeast be adopted for the standard marking of bale goods with the following specifications:

1. Number of the bale.
2. Name of the consignee.
3. Destination.

Marking of bales also to contain number of yards, and from whom shipped, as well as the destination thereof.

Resolved, That the thanks of the association be tendered to the Memphis Cotton Exchange and the Memphis Terminal Corporation, the city of Memphis and its clubs in their unlimited hospitality in entertaining the members and guests of this convention.

Resolved, That thanks of the association be tendered to W. A. Graham Clark and the Department of Commerce for the exhibition of samples of cotton goods gathered in many foreign lands.

T. H. Rennie stated he was requested to invite the members of the association to attend a meeting of the Southern Textile Association, to be held Nov. 4, 5 and 6, at Greenville, S. C., where an exhibit of cotton machinery and of cotton goods would be held.

Election of Officers.

The committee on nominations then presented its report and upon unanimous approval, the following were chosen as officials for the coming year: President, Scott Maxwell, Cordova, Ala.; vice-president, Jno. A. Law, Spartanburg, S. C.; secretary and treasurer, C. B. Bryant, Charlotte, N. C. New members of the board of governors: Caesar Cone, Greensboro, N. C., chairman; J. J. Bradley, Huntsville, Ala.; Eugene Holt, Burlington, N. C.; George E. Spofford, Augusta, Ga.; Paul J. Marrs, Henderson, Ky.; Craig S. Mitchell, Philadelphia, Pa.

The new officers pledged themselves to work for the best interests of the association and requested the cooperation of the entire membership in the future work of the organization. The new president then appointed Past President T. I. Hickman as a member of the national council to represent the American Cotton Manufacturers Association and as alternate, T. H. Rennie. The business session of the convention was then formerly adjourned.

Some Entertainment Features.

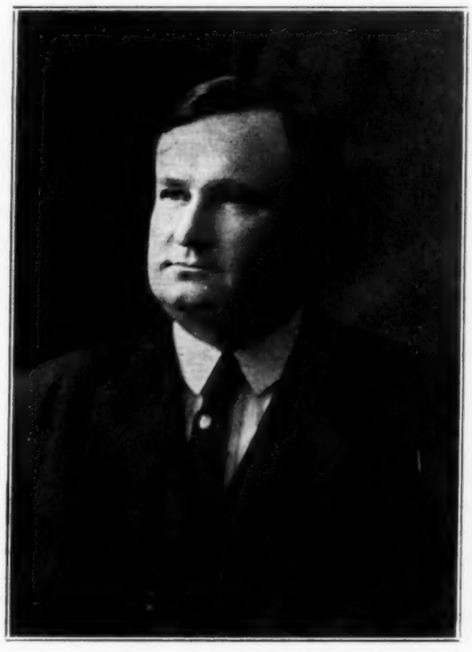
The afternoon of the second day was devoted to a most enjoyable automobile trip, private cars being utilized, each having a citizen of Memphis aboard to direct the way. Riverside Park was reached after a delightful drive. This park is supposed to be located at the point where DeSoto discovered the Mississippi. From this point to Overton Park, located at the other side of the city, the route lay over fourteen miles of the finest tar macadam parkways. After riding over these a short time, one no longer wondered that Memphis was a city of automobiles. The second park was even more interesting than the first, and contains the second largest free zoo in the United States.

American Finishing Company.

The party which the writer accompanied was particularly fortunate in having as hosts President Lawson D. Falls and Treasurer Hill Bond of the American Finishing Company and the American Bag Company, who operate a modern bleaching, dyeing, finishing and bag making plant contiguous to the huge plant of the Memphis Terminal Corporation. In this connection it is of interest to note that B. L. Mallory, the president of the big terminal company, is also vice-president of the bag and finishing plants.

The two officers first named were persuaded to allow us to visit these interesting plants and piloted by Manager E. L. Whitaker of the finishing company, who was also one of the party, the trip was made.

The buildings throughout are of concrete construction and equipped with automatic sprinklers, which results in



FULLER E. CALLAWAY, LA GRANGE, GA.

an exceedingly low insurance rate. They are arranged to form three sides of a rectangle the fourth side of which is the railroad tracks. This arrangement allows the cloth to always proceed in a forward direction as it goes through the various processes until it once more reaches the railroad as a finished product.

The principal class of work finished at present is back-filled bag goods, but they also handle crash toweling, diaper cloth, ducks and drills for the coat and apron trade, cambrics, pocketing, shoe lining, poster muslin, and similar back-filled work. The plant has a capacity of twelve tons per day. Water is supplied by an artesian well giving ideal water for bleaching purposes. The machinery is modern and has a capacity far exceeding that necessary for handling the bag work of their associate company. Located as they are at the gateway between the Southeast and the West, and with exceedingly low freight rates and splendid railroad facilities, they are in a position to handle many other classes of work to the great advantage of the contracting parties.

The Country Club Banquet.

The long automobile ride and the walks in the parks during the afternoon had thoroughly equipped everyone with a healthy appetite, while those who went direct to the Country Club for golf had arrived at the same end by a different route. Therefore the call that dinner was served fell on willing ears.

The dinner was served at 6:30 in the large dining room, the long tables being tastefully decorated with flowers. The menu was a work of art, the design being specially engraved by the Harry E. Northrup Co. of Memphis. The design represented two cotton leaves and an open boll on the white surface of which appeared the words, "In honor of the American Cotton Manufacturers Association, April 13-14, 1915."

During the progress of the dinner several one minute talks were made, among the speakers being Albert Greene Duncan, President Hickman, President-elect Maxwell, Fuller E. Callaway, W. G. Turner and Joseph Newburger. A point worthy of note was brought out by President Hickman when he announced that the banquet was also his birthday party.

Memphis covered herself with glory from the entertainment standpoint and Messrs. Joseph Newburger, B. B. Beecher, president of the Memphis Cotton Exchange, E. W. Porter, J. M. Beley, W. G. Turner, A. H. Frank, J. R. Flippin, G. F MacGregor, John S Williams, Hugh Pettit, Paul Towner, Paul Dillard, G. F. Gunther, F. M. Crump, E. G. Gibbons and D. H. Crump, who comprised the entertainment committee, are to be congratulated on the manner in which they performed their duties. Most of those present thoroughly agreed with President Hickman when he said that while this was his first visit to Memphis, in the future he expected to come at least once a year.

Convention Comment.

SCOTT MAXWELL, the new president, has been actively associated with the association and its work for many years. He came into the South as an overseer twenty years ago and has worked his way up to the command of a mill by exhibiting the same characteristics which have shown so prominently in his association work, these later efforts now being rewarded by his election to the highest office within the membership of the association.

JNO. A. LAW, elected vice-presirent, is one of the more prominent cotton manufacturers in the younger class. President and treasurer of the Saxon and Chesnee Mills, in South Carolina, and President of the First National Bank of Spartanburg, Mr. Law is a recognized factor in the industry and his many friends predict that he will be heard from later in no small way.

CAESAR CONE, the new chairman of the Board of Governors, is well known to every mill man in the country. A manufacturer of many years' experience, a philanthropist at heart, and a business man by nature, Mr. Cone in his new position will render a strong administration doubly secure.

CAPTAIN PAUL J. MARRS, the dean of the governing board, is still an active manufacturer in spite of his 75 years. As secretary of the Henderson (Ky.) Cotton Mills, and as an officer in two textile organizations, the Middle States Association and the American, he is setting a splendid example for many of his more youthful brother manufacturers to emulate.

GEORGE E. SPOFFORD, another man from Maine, is a comparatively new dweller in the South, having been associated with W. H. Langley & Co., in the selling end prior to accepting his present position as vice-president and general manager of the Langley, Bath and Seminole plants near Augusta, Ga. He has given many indications of inherent strength of character and his election to the governing board is but the beginning of his career as a southern manufacturer.

CRAIG S. MITCHELL of Philadelphia is another young man elected to the governing board. He is very closely identified with many southern interests through the yarn house of J. E. Mitchell & Co.

J. J. BRADLEY, another new member of the Board of Governors, is the agent of the Merrimack Mfg. Co., at Huntsville, Ala. Mr. Bradley originally came from Philadelphia and has had an active experience with southern manufacturing conditions.

EUGENE HOLT of Burlington, N. C., was elected to the Board of Governors replacing the last retiring member at this meeting. Mr. Holt is treasurer of the Sevier Cotton Mills at Kings Mountain, N. C., as well as manager of the Aurora Cotton Mills at Burlington and the Gem Cotton Mills at Gibsonville, N. C.

ALBERT GREENE DUNCAN, treasurer of the Chicopee Mfg. Co., and the Harmony Mills, and president of the National Association of Cotton Manufacturers, was one of the prominent New England men present. Mr. Duncan is a deep thinker, a student of economic conditions and a jolly good fellow withal.

HERBERT LYMAN, treasurer of the Merrimack Mfg. Co., at Lowell, Mass., and Huntsville, Ala., was another prominent New England manufacturer present. This is the first time Mr. Lyman has attended a southern convention, but his many new acquaintances sincerely hope he will come often in the future.

LEE RODMAN, vice-president and treasurer of the Indiana Cotton Mills, was another prominent Middle States Association manufacturer present. Mr. Rodman is perhaps the most energetic cotton manufacturer from that section and "Let Lee Rodman do it," is frequently the slogan when some situation arises requiring the peculiar combination of energy and diplomacy with which he is naturally endowed.

J. C. SAUNDERS, treasurer of the Bonham Cotton Mills and president of the Guadalupe Valley Cotton Mills, of Texas, headed a Texas delegation of which Paul K. McKenney, general manager of the Texas Cotton Mills and W. B. Munson, Jr., treasurer of the Denison Cotton Mills Co., were prominent members.

HENRY C. DEXTER, president of the Warwick (R. I.) Lace Works and treasurer of Greene & Daniels Co., Inc., Pawtucket, R. I., was another prominent New England mill man present.

An organization is composed of units. The more cohesive the units, the more successful the organization. The greater the number of these cohesive units the more powerful the organization becomes. As a cotton manufacturer you should be a cohesive unit. Read page 247 and examine yourself for cohesiveness.

The report of the Eleventh Annual Convention and Exhibition of the National Association of Hosiery and Underwear Manufacturers will be found in the Knitting Supplement at Page 311.

Mill Conditions and Market Reviews.

SOUTHERN MILL SITUATION.

A rather gloomy view of the immediate future of the textile industry in this country, where dyestuffs are necessary, seems to present itself at this time. The situation is undoubtedly complicated in the extreme, and apparently there is little relief in sight at present. However, "necessity is the mother of invention," and it is thought by some that this urgent need of dyestuffs will work out right after all, and if the war goes on for a year it is predicted by some mill men who are in a position to know that this country will be making the fast black dyes it will require for textiles. And, it is thought by some, who "keep their ears to the ground" that many other dyes will be developed here and sold in a commercially profitable way.

In a recent interview with HUGH F. LITTLE, Assistant Treasurer of the Marion Manufacturing Company and the Clinchfield Manufacturing Company, of Marion, N. C., he said to COTTON'S representative:

"The business outlook as it confronts us today is, we might say, of an erratic nature, being influenced and showing feeling by the changes we are forced to face, owing to the relations are are developing between the nations at conflict and our own efforts in the textile and financial trade toward expansion in South American and other foreign markets.

"I do not look for the good business we hear so much about until 1916, or until a confidence has been firmly established, which has been shattered by events of the past six months.

"The best barometer of all business, does not reflect immediate boom times and our opportunity for expansion in foreign trade must necessarily come a little slow, as conditions of trade, mode and manner, will have to be studied from a deeper standpoint than putting the samples under the buyer's nose and taking orders.

"The cooperation of manufacturers and their financial agents, together with special representatives in foreign markets, studying the conditions under which they trade and our honest efforts to conform to their mode of trading, will be conducing towards a larger trade, but not until this is done may we expect large things accomplished.

"The advance in cotton should not handicap the manufacturer doing a legitimate business in manufacturing and merchandising his goods, but will, I think, prove to the world that this product is at all times necessary for the welfare of the people at large and that it is certainly worth at all times about 100 cents on the dollar.

"The dyestuff situation causes us to awaken to the fact of our needs and presents an opportunity for studying this important factor in the laws of supply and demand and gives us warning to fortify ourselves against contingencies that might arise in this or other similar products, teaching us the importance of making and conserving our own products."

News from Newton, N. C., states that the Fidelity Hosiery Mill people of that town are watching their store of diminishing dyestuffs with a jealous eye. The last shipment of sulphur black they received cost 46 cents per pound, and they would gladly pay 50 cents for some more. Meanwhile they are making up white, blue and pink hosiery and pushing these goods for all they are worth. This mill has abundant orders, enough to run it for months to come, and is running full time.

Superintendent Gregg of the Holt-Morgan Mills, Fayetteville, N. C., states that those mills have resumed operation after having been shut down for three weeks due to a shortage of dyestuffs.

A statement has been given out by an official of the Asheville (N. C.) Cotton Mills to the effect that the local mills would not be affected by the shortage of dyestuffs. It was stated that this mill has enough dyestuff on hand to keep running, and it was thought that it would not be necessary to shut down the mills at any time. It will be possible, it was stated, to make combinations of the colors on hand at the mills thereby increasing the time during which the mill can run without securing additional supplies from Germany.

In writing about the dyestuff situation generally, the New York Journal says that some concerns have entered into agreements with established domestic dye manufacturing companies to take all the product they will use in two or three years, thus giving the established concerns an assurance of support while enlargements of dye-making facilities are being made. It is quite possible, now that the shortage is more generally recognized, that some strong national movement will be inaugurated to make this country more independent of foreign countries in an essential of production so important as colors for textiles.

Figures have just been given out showing the shipments of the 11 Greenville, S. C., cotton mills for February and March of this year in which it shows a gain for both months. The figures are given in pounds, the yardage not being available, and are as follows:

February, 1914, 1,797,031; February, 1915, 2,442,828.

March, 1914, 1,913,572; March, 1915, 2,653,613.

Gain February, 1915, 645,797; gain March, 1915, 740,041.

These figures are not exact, but will be found to be in close proximity to the total output of the mills for the months given. The gain of over half a million pounds for each month, shows that the local mills have been busily engaged in weaving cloth, only one mill closing down for a few weeks and at that time running on half time, this only lasting a few weeks in the early fall.

L. W. Keith has entered suit against the Monaghan mill for damages in the sum of $15,000 alleging that he was blacklisted by this mill and has since been unable to secure employment at any cotton mill. He took an active part in the I. .W W. strike against this mill last year, at the time that Lewis W. Parker was president of the Parker Cotton Mill Corporation. A number of prominent mill men will be subpoenaed as witnesses when the case is called.

Greenville mill men are looking forward with considerable anticipation to the meeting of the Southern Textile Association which is to be held in Asheville in June. There will in all probability be the largest attendance from this section in the history of the association. A feature of the meeting will be the wearing of "all-cotton" costumes, including shoes and hats.

Final details in regard to the construction of the new Hillside Cotton Mills, at LaGrange, Georgia, have been announced. There will be a three-story main mill, 20 warehouses and about 120 tenement houses, of three, four, five and six rooms each. This mill will have 20,000 spinning spindles, 5000 twister spindles, contracts for which have been placed. They hope to begin operation late next fall.

The Social Circle Cotton Mills, at Social Circle, Georgia, has been taken over by J. W. Cannon and Sons, of Concord, N. C. The mill is being placed in first class condition, considerable new equipment having been bought for this plant. The mill manufactures terry towels and fancy weaves.

A new sanitary sewerage system is being installed at both the Delburg and Linden Mills at Davidson, N. C. Each of these mills is adding new machinery.

It is planned by the officers of the mill to double the capacity of the Ensign Cotton Mills, at Forsyth, Georgia. An additional mill building will be erected and equipped with about 5600 spinning spindles and 1400 twister spindles.

The Coats Hosiery Mill, at Coats, N. C., has been organized with $10,000 capital. The officers are E. M. Henley, president; J. T. Coats, vice-president; N. T. Patterson, secretary-treasurer.

The Kincaid Mfg. Co., Griffin, Georgia, is preparing to receive about 8,000 new spinning spindles and 160 looms. This manufactures towels, corduroys and table damasks.

Chas. H. Geither, K. C. Menzies and A. A. Shuford have organized the Highland Cordage Co., of Hickory, N. C., with capital stock of $50,000.

The Georgia Cotton Mills, at Griffin, Georgia, have placed an order for six new cards.

The Enoree Mfg. Co., at Enoree, S. C., which has been in the hands of a receiver for sometime, has been reorganized and plans are being made to begin operating the plant after a shut-down of several months. Sheetings and drills are manufactured, with equipment of 36,000 spindles and 900 looms.

The French Broad Mfg. Company, Asheville, N. C., have placed their order for several thousand spindles, with complementary machinery. This is to be shipped and installed as soon as possible.

The Rhode Island Mills, of Spray, N. C., and the German-American Mills of Draper are both adding new roving machinery.

Machinery is being installed and started up in the new addition to the Clinchfield Mfg. Co., at Marion, N. C. Convertible cotton fabrics will be manufactured on 26,000 ring spindles and 600 looms. D. D. Little of Spartanburg, S. C., is president of this mill.

The Texas Cotton Mill Co., McKinney, Texas, have placed order for some new card room machinery. The South Texas Cotton Mills, Brenham, Texas, are planning to add new spinning frames.

New opening machinery has been ordered by the Patterson Mfg. Co., at China Grove, N. C.

The Standard Processing Co., of Chattanooga, Tenn., will erect addition to mill building, to be used for mercerizing cotton goods. Chandley and Campbell of Chattanooga prepared the plans and will do the work.

George H. Lanier of West Point, Ga., Vice-president and General Manager of the Wellington, Sears interests in that section, recently announced that a new 20,000 spindle mill for the manufacture of ducks would be immediately constructed near one of their present mills at a cost of $500,000. J. E. Sirrine, Greenville, S. C., is the architect and engineer.

The Thomaston (Ga.) Cotton Mills, who are building two additional mill buildings for housing 28,000 additional spindles and accompanying machinery, will also erect 50 new cottages for the increased operative force necessary. They have also recently closed a contract with the Central Georgia Power Co., with a plant at Jackson, Ga., for 2000 horsepower of electricity to be placed at their disposal in July of this year.

The Golden Belt Mfg. Co., at Durham, N. C., is replacing 580 old style looms with 530 Draper automatic looms.

NEW ENGLAND MILL SITUATION.

Business has improved greatly during the past month and if manufacturers could see some solution of the dyestuffs difficulties they would generally be inclined to regard the outlook as very promising. The situation on dyestuffs is becoming very serious with the colored goods mills. The finishers are getting work on the dyes they have in hand and the printers are able thus far to so shape their orders that they are moderately well employed. The large colored goods organizations, however, are as a rule already pinched for supplies of many colors and they are steadily being forced to eliminate various lines from those they can offer to the trade.

The Amoskeag Manufacturing Company placed all lines at value in the first half of the month and will not take any forward orders except subject to mill approval. They will fill the orders in hand, many of which will not be completed for some time, but on colors they are rapidly reaching the point where they must completely withdraw all goods from sale until new supplies come in from Germany or similar supplies can be made here. The condition in this, the largest of the New England colored goods plants, is duplicated in some degree in all others. The mills that make blankets and napped cottons are relatively better supplied with dyes than the gingham, ticking, and denim mills. This is due largely to the fact that they were selling goods all through last year and could see the promise of a much larger business consequent upon low cotton. They laid in dyestuffs supplies in a way that was not parallelled by the gingham mills and other colored goods mills whose trade was irregular. On future business they are selecting orders and are steadily contracting the business they will take on solid colors or on the navajo shades that take such a variety and volume of dyes when used in napped cottons.

There have been some price advances on colored goods and in some instances the new prices represent a fair manufacturing profit on present costs without taking into account the exorbitant values of the limited lots of dyes that can be picked up in a scattered way. Yet the trade is generally of the opinion that the mills have frittered away their profits on colored goods and have made no suitable provision for the replacement costs of merchandise that will have to be reckoned with some day in the not far distant future. Eastern mills were perhaps less prodigal of their gifts to buyers of colored goods than many of the southern mills but they are taking little pride in the

comparisons as some very low priced sales stand to their discredit.

In the effort to secure business on percales for fall the two largest printers entered into a price war that was demoralizing, and while it resulted in the booking of the largest business ever taken, the measure of profit possible is very small, if it exists at all. A similar condition was noted in the prices at which some New England denims were disposed of, and some tickings and staple ginghams were sold relatively cheaper than bleached muslins or gray convertibles. These facts taken in conjunction with the well known fact that only a comparatively few mills had courage to buy a year's supply of low priced cotton when the very low prices were quoted, do not make for pleasant memories.

The change that has come over business in the first few weeks of April have few parallels in the history of the business. Since the first of March the prices of some wide print cloths of staple construction have advanced 7/8 cents a yard and the mills have been able to reduce their surplus and to build up fair orders for delivery up to July. The New England mills have not sold late contracts as freely as southern mills, yet there are some contracts on the books that will carry along to the end of the year on print cloth yarn goods and some coarse goods of a less staple character.

The recovery of business in bleached goods has been something very unusual. The best known New England branded lines have been selling at a profit from the beginning of the year and it has been much more profitable to sell the goods bleached than to offer them in the gray at the prices current. Muslins, cambrics, nainsooks, longcloths, and other staple bleached products, including wide sheetings and pillow tubings, are in a very healthy condition and the bleacheries have been doing a much better business than the finishing companies.

The latter have been doing well on some lines of goods, principally on blacks and whites, and on some lines of poplins and soisettes. The fancy white goods bleacheries have been doing all the immediate delivery business they could handle within the time limits set upon deliveries. A great deal of business offered had to be declined by finishers and dyers because of inability to secure the colors wanted. This has not prevented some concerns from switching orders to other shades than those first called for and there has been a steady ekeing out of dyestuffs supplies which has led to many manufacturing economies of which more will be heard after the squeeze is over.

Gingham business has not been good although some mills have kept running in full. Others have not only shut down because of a lack of fast dyes but because orders for goods that could be furnished have not come along in satisfactory volume or at a satisfactory price. Many dark styles offered to mills were declined during the month. Buyers at one time were very anxious to secure all the fast colored chambrays they could lay their hands on. There was considerable speculation in the orders tendered and it was this that led mill agents to withdraw goods or place them at value until regular customers could be taken care of. It is accepted by many gingham manufacturers as one of the unavoidable penalties of the war that certain fast colored ginghams, branded, will be held out of the market until the requisite coal tar colors can be secured.

Print cloth sales have been very large during the month. The stocks at Fall River have dropped to about a million and a quarter pieces and the mills there are very comfortably sold ahead for May and June. The danger of a wage trouble is looming up at Fall River where weavers are agitating an advance in wages which they have not the slightest chance in securing. The loomfixers at New Bedford have been refused point blank any material modification of their working conditions and the policy of meeting with the union labor leaders twice a year to discuss wage and working conditions has been abandoned by the manufacturers there. Considerable irritation is felt by manufacturers at the attitude of the labor unions as many of them declare that they have kept mills going at a loss since the war in order to keep workers employed during what was expected to be a hard winter.

The trade in fine goods has not been so buoyant and active as the business on print cloths and other cloths, and the improvement had only begun to appear in sight at the end of the third week of the month. Some speculative buying has started in, prompted entirely by the conditions known to exist in staple cotton markets. A few large manufacturers of linons and lawns gave notice to regular customers that it would be prudent to place orders early as the supplies of good quality long staple cotton were limited in volume as well as very high in price. This stimulated business in some directions and eventually led to a cleaning up of stocks of 40-inch lawns, marquisettes, fine voiles, and similar merchandise. The mills need work for the interval between May 1 and August 1. After that time they look for a substantial trade to result from the known depletion of many stocks for the new spring business of 1916.

It is difficult to say to what extent the so-called war orders have benefitted New England cloth mills. That they have been benefitted does not admit of a doubt as quantities of hospital goods, duck, sheetings for hospital needs, etc., have been disposed of. The principal gain in foreign trade has come, however, from other directions.

There has been a gain in the business done on goods shipped to the West Indies, Central and South America, and the Philippines, and there has also been some commercial business done for European countries that has not been fully measured as yet. The gain in the exports of knit goods and hosiery has been of a substantial character regardless of the sales made to governments for use by soldiers and sailors. A very satisfactory business is being done on certain grades of seamless hosiery in all cotton and in silk, and art silk constructions. There has also been business done on light weight knit goods of the better qualities for export and the figures are likely to prove surprising in a few months when government statistics begin to come to hand.

It is one of the singular facts of the situation in manufacturing circles that while the actual growth of business is here and must be acknowledged, that causes that have led to the growth seem obscure. That is to say, the liquidation that is going on still in the retail trade of the country is not offset yet by expansion in the stores that are in good credit. Steel companies are not overbusy unless they are engaged on ammunition, the railroads are showing no

great earnings, lumber camps have not become especially active, building trades are indifferently employed, and many things are cited by the manufacturer in defense of the theory that the purchasing power of the masses is still impaired. But the cold facts stand out that Wall street is booming, cotton is rising, jute products are going up, silk is growing firmer, and other things are happening to contradict the conclusions of those who are trying to measure business accomplishments by the forces that have increased or diminished business in past years.

Although the machinery concerns are not really active there have been some decidedly large orders recently placed for cotton machinery in this section. There is a fierce competition going on betwen some of the machinery manufacturers and that is one cause that has led up to very low prices.

It is stated that Fall River mills have placed orders within six weeks for half a million dollars worth of new machinery for renewal purposes. One spinning frame manufacturer is reported to have booked 100,000 spindles for delivery in six months and the buyers are all old corporations. One of the machinery companies is credited with having 1,000 cards to build in the next year excluding orders for one large new mill now in process of reconstruction. The prices at which machinery has been sold are as low as they have been for many years and lower by far than they were following the panic of 1907. These prices have stimulated orders and it remains to be seen how much business will be taken before the competition between the machinery men will cease.

COTTON COMMENT.

BY H. AND B. BEER, NEW ORLEANS.

New Orleans, April, 1915.

Another advance of $5 per bale has taken place during the past month, which represents a rise of $10 per bale during the past sixty days and $15 per bale from the season's low levels of last fall. This further rise in the value of the staple is attributed to the continuance of heavy exports to Europe, improving trade conditions in the United States and prospects for a much smaller crop for next season.

While we believe that prices for cotton will be higher later in the year, we are of the opinion that since summer months have reached the 10 cents level, fall deliveries 10.25 and winter positions 10.50, present prices are high enough for the present, and that a sharp reaction is likely when least expected. Therefore, we favor buying on good declines only.

Of this season's crop the South has marketed 13,580,900 bales compared with 14,017,000 to even date last season, and as the crop is about 16,750,000 bales there remains to be marketed about 3,170,000 bales against only 960,000 marketed after this time last season.

The world's visible supply of American cotton on April 9th was 5,789,000 bales vs. 3,688,000 one year ago, of kinds other than American 1,703,000 compared with 2,001,000 last year, making the total of all kinds 7,492,000 against 5,689,000.

In view of this large visible of American, which is 2,101,000 bales larger than at this date last year, and the South holding about 2,210,000 bales more than one year ago in the interior, which makes an excess of 4,311,000 larger than the available at this time one year ago, all surface features of a bullish character seem to have been about discounted so far as the value of the old crop is concerned. Nevertheless, we favor buying on important declines, as we believe that developments in connection with preparations for the new crop will be such as to make for a much smaller crop for next season.

Exports this season promise to be nearly as large as the total for the whole of last season, which were 8,889,000 bales, the continuance of the war notwithstanding. So far this season they total 6,803,000 bales vs. 7,997,000 to the corresponding date of one year ago, with every indication of reaching about 8,500,000 before the season is over at the close of next July.

An optimistic feeling prevails throughout the country, especially in Wall Street, as to the future outlook for business in the United States. This is being reflected in an advancing market for securities, with more business doing on the New York Stock Exchange than for the past six years.

Trade advices from New England mill centers are very encouraging owing to an improved demand for cotton goods of every description, and prices for dry goods have experienced a sharp rise in New York during the past two weeks. Up to April 9th takings of cotton by American mills were nearly as big as for the same time last season—4,842,000 bales vs. 5,077,000, of which mills of the North are credited with 2,305,000 against 2,337,000 one year ago.

These features cover the situation as it exists today, and any further rise in the cotton market will have to come from trade expansion, prospects for the new crop, and European political developments.

As to new crop preparations, indications are that the acreage reduction will be about 20 per cent less than last year's area, and that about 40 per cent less fertilizers will be used than last season. On this basis an indicated crop of about 11,000,000 bales is promised for next season, compared with about 16,750,000 bales this season. However, some people contend that owing to the big advance in the price of cotton, the acreage will not be reduced more than 10 per cent, and that the market is apt to have a big decline. But supposing that unfavorable crop weather is had during the growing period, the acreage reduction, whatever it may be, would loom up very largely as a bullish feature.

Most of the umbrellas sold in India are of cotton material, with common wooden handles. They can be obtained in the bazaars for as low as 40 cents apiece and somewhat better qualities up to about 75 cents apiece. There is a smaller demand from a better-class trade for half-silk and half cotton umbrellas, which average about $1.60 apiece. The sale of all-silk umbrellas is quite small. Generally India affords a big market for the cheapest grades of umbrellas, and when prices are low enough a good business can always be done.

Taxes are an unknown quantity, which is constantly being raised in order to provide the government in luxury. Also to keep people guessing.

"Get together" is the watchword of the present. Read page 247 and act at once.

THE KNIT GOODS MARKET.

In the early part of the month the demand for spring underwear seemed to be improving. Inquiries in the market for balbriggan union suits for immediate delivery were quite plentiful and some agents reported export orders for 8-pound flat cotton undershirts. In ribbed underwear there was found an advance in rate and two southern mills raised their prices. The Standard Knitting Mills of Knoxville, Tenn., and the Appalachian Mills of the same place announced that on their fall lines on account of the higher situation in the cotton market, they would necessarily have to advance. The Standard Knitting Mills are advancing 5 per cent on all their products while the Appalachian Mills announced an advance of 10 cents a dozen only on shirts and drawers.

Later in the month another mill was reported as having advanced in prices on underwear. It is known that jobbers and retailers are operating very close in order to keep down stocks for the balance of the year. This is shown by the occasional reorders from jobbers for next fall and the admission that they have in some instances already oversold their purchases with the mills. Outside of the regular domestic trade in men's cotton underwear, large manufacturers look at the prospects for foreign business most optimistically.

On the hosiery end advances of 2½ cents a dozen on blacks by some hosiery mills and a larger percentage of white product seems to be the situation in which a large part of the hosiery industry finds itself because of trouble in supplies of dyestuffs. There has been an opinion in many minds that white hosiery will be more generally worn this summer than heretofore and unless the dyestuff situation changes it will probably make them popular for all seasons.

It is evident that foreign conditions are seriously interfering with the production of artificial silk yarns and large hosiery mills are feeling this condition. The last available figures of imports of artificial silk show a marked falling off in receipts from this time last year.

At the time this is written knit goods manufacturers are preparing for a trip to Philadelphia to the annual convention of the Knit Goods Association and there is little doubt that much discussion of general conditions will be had at that time regarding the dyestuff shortage and the effect of the war. The convention report in the Knitting Supplement will carry some of this comment as heard on the floor of the convention and elsewhere.

THE YARN MARKET.

The yarn market for the South has proved a somewhat better one than for some time past. The consistent advances in the price of the raw staple has to a great extent been reflected in the prices asked by the spinners and while buyers frequently objected to these prices and declined to purchase, in most instances, or in the cases where they were obliged to have the yarns, the prices were paid and were at a consistent advance from those of a month ago.

There was some demand for single combed yarns in the early part of the month and several deliveries of mercerized yarns, while the weaving lines remained unchanged. Sentiment, however, was generally optimistic and the spinners stood by their prices.

As the month wore on practically everyone admitted that business was getting better and some of the yarn dealers admitted that their sales for the year so far exceeded in poundage the sales for the corresponding period of last year, but the lower prices they have been forced to accept made the amount of money received less. On carded knitting yarns the prices were regular, but tending upward, while combed yarns showed some improvement.

Later in the month the demand for single combed peeler was fair and there seemed to be a good demand for mercerized yarns. The weaving lines were spotty in the Philadelphia market while in the New York market the weavers were becoming particularly active and there was a material demand for yarns that are used in the small miscellaneous trade, such as the fancy webbing, braid, tape, etc. These goods have been pretty slow for some time and the advances shown have been of a substantial character as some of the orders have run to one hundred thousand pound lots.

The note of optimism which has been subtly present for some time is becoming more and more pronounced and with the general market on a better basis and a better feeling towards the entire country as indicated by Bradstreet's reports there is little doubt that the spinners have caught the right end of the market in holding up their prices and that the buyers will have to meet them on their own ground sooner or later.

Following are recent quotations in the Philadelphia market:

Southern Single Skeins.

8s	14 @15	10s	14½ @15
12s	14½ @15	14s	15
16s	15½ @16	20s	16
24s	17½	26s	18
30s	19½ @20		

Southern Single Warps.

8s	14½ @15	10s	15
12s	15 @15½	20s	16 @16½
24s	17 @17½	26s	17½ @18
30s	20½ @21	40s	26
50s	33		

Carpet and Upholstery Yarns in Skeins.

9-4 slack	16 @16½	8-4 slack	16
8-3-4 hard twist	14 @14½		

Southern Two-Ply Skeins.

8s	14½ @15	10s	15
12s	15½ @16	14s	14½ @15½
16s	15 @16	20s	17 @17½
24s	18 @18½	26s	18½ @19
30s	19½	40s	25 @25½
60s	38		

Southern Two-Ply Warps.

8s	15	10s	15 @15½
12s	16 @16½	14s	16½
16s	17 @17½	20s	17½ @18
24s	18 @18½	26s	18½ @19
30s	19½ @20	40s	26 @35
50s	34 @35		
70s	52 @53	80s	62 @63

Northern Two-Ply Carded Peeler Skeins.

22s	21	26s	22 @22½
30s	23 @23½	36s	25
40s	26 @27	50s	33 @36

Two-Ply Combed Peeler Skeins.

20s	24 @24½	24s	25½ @26
30s	30	40s	35 @36
50s	38 @39	60s	45 @46

Southern Frame Spun Yarn on Cones.

8s	14½ @15	10s	15 @16
12s	15½ @16½	16s	16½ @17½
18s	17½	20s	18
22s	18½	24s	19 @19½
26s	19½ @20	30s	20 @20½
30s	19½ @20	40s	26 @27

Northern Mule Spun Carded Yarn on Cones.

10s	17½ @18	12s	18 @18½
14s	18½ @19	16s	19 @19½
18s	19½ @20	20s	20 @20½
22s	20½ @21	24s	21½ @22
26s	22½ @23	30s	24
40s	26		

Northern Mule Spun Combed Peeler Yarn on Cones.

10s	22	12s	22½
14s	23	16s	23½
18s	24	20s	24½
22s	25 @25½	24s	26 @26½
36s	35 @36	40s	38

COTTON MANUFACTURING.

THE SIZING OF WARP YARNS.*

BY C. C. MOORE.

As this paper was read by title only at the convention, COTTON *will willingly print a reasonable amount of discussion on any of the debatable questions raised.—Ed.*

The manager of a cotton mill may be said to have two fixed working conditions; namely, the class of machinery which he finds installed in his plant, and the grade of cotton which is given him for the manufacture of cloth. Generally he is not expected to make many changes in his machinery equipment, and he is expected to confine himself to the grade of cotton his mill owners choose to purchase. In consequence the efficiency of his mill must be obtained through his ability to make the most improvement in such steps of the cloth making process which he is allowed to change.

It can be said with certainty that the proper sizing of warp yarns will enable a manager to make saleable cloth out of low grade cotton, with the use of poor machinery; while improper sizing of the warp yarns will cause a mill to lose its profits, even though it is well equipped and a good grade of cotton is being used. For this reason it is claimed that the sizing of warp yarns is the important feature in the manufacture of cloth. In times past the process of sizing has been clouded in mystery, it being the secret of the mill, and in some instances has been the personal secret of the size maker. And at the present time many of the managers of great mills give but little thought to this question, either for the reason that the size maker keeps from them the method of procedure, or the manager feels his inability to understand the matter sufficiently to make inquiry as to what is being done. The managers seem to prefer to place the responsibility on the size makers, though these men are always without training other than that which came through their apprenticeship.

It is not the custom for American manufacturers to give excessive weight to their cloth, at least not to the extent that is practiced abroad. Furthermore as the weighting of cloth is generally done in the "finishing" process and not in the preparation of the warp yarns, the question of weighting will not be discussed in this paper, but rather the real science of preparing a warp yarn such that the highest production may be obtained in the weaving together with a high quality of cloth made.

A very natural question is, why is a warp sized? For answer it may be said to make it smooth by sealing down the fiber ends, so that it will give the least friction in its passage through the loom fixtures. It is generally supposed that a yarn is sized to make it stronger, but this is not the case. The yarn is a trifle stronger after sizing, but the tensile strength of the unsized yarn is many times greater than is the strain necessary for weaving. Yarns do not break owing to lack of tensile strength, they break because the yarn has either been frayed in the weaving process, or because they are brittle. An unsized yarn is, of course, very flexible, and the addition of any sizing will diminish this flexibility. But an unsized yarn is so liable to fraying during the weaving process, that sizing is absolutely essential even though the flexibility of the yarn will be impaired. Therefore the problem is, how to size the yarn and at the same time reduce its flexibility as little as possible.

For the best consideration of this problem, the imagination will first be drawn upon. Suppose each one of the warp yarns could be encased in a thin glass tube. In such an instance, fraying would be prevented, but the brittleness of the tubes would prevent weaving. Again, suppose each one of the warp yarns is encased in a thin smooth rubber tube. In this instance the yarns would be perfectly flexible, there would be no fraying, and as the tensile strength is already many times greater than the tensile strain, the weaving conditions would be supposedly perfect. It remains to be seen how near we can, in practice, approach this theoretical encasing of the yarns in some flexible covering. The natural tendency will be to use some adhesive that will form itself around the yarns, such that when they are afterward separated they will have a surface that is smooth and offers least friction in the loom. What are the requirements of this covering? It must not be brittle, else it will cause the yarn to break. It must have sufficient adherence, else it will chafe off. It must be smooth, else there will be friction in the reed and harness, and the cloth will be harsh.

What are the adhesives that suggest themselves for use? The strongest adhesive is animal glue, the second strongest is dextrine, the third strongest is starch paste. With either animal glue or dextrine the fibres would certainly be held down, and all fraying prevented, but the yarns would have been made so brittle that the weaving would be greatly impaired, or in the case of the glue, impossible. Actual practice has resulted in the use of starch paste as the best of the three possible adhesives. But even the use of starch paste has been shown to reduce the flexibility of the yarn, and also give a roughened surface. To overcome the reduced flexibility, due to the starch paste covering, resort is had to humidity, while to overcome the roughened surface there is used some form of lubricant. Humidity is obtained artificially in the weave room while the lubricant is added to the starch paste in the size kettle. A starched thread is, of course, hardest when it is dry, and most flexible when wet. Also when the starch on the thread is hard, it is more apt to break the thread, while when wet it is more apt to be rubbed into balls on the yarn and eventually choke in the reed. Because some humidity is good it does not follow that more is better. So called "soft warps" are many times due to excessive humidity in the weave room and not to any fault of the slasher man. The more starch on a warp the more humidity that warp can stand for the reason that with a heavy coating of starch on the thread the moisture of the air is not so apt to permeate all of the starch on that thread during the time it is being woven. Again, the more starch on a thread the less flexible is that thread and the more necessary it is that this be overcome with the aid of humidity. In consequence the slasher man is constantly attempting to get on more starch to overcome the effects of the weave room humidity, while the weave room is in turn forced to get more humidity to overcome

*Read before the American Cotton Manufacturers Association.

the excessive stiffening which the slasher man has obtained. And so it goes until the slasher man has gotten all the starch on his yarn that it will carry, and the weaver has gotten all the humidity it is possible for him to get, after which they do the best possible under the existing conditions.

The lubricant used is generally some form of grease added to the starch paste in the size kettle. The amount of lubricant used depends upon the amount of harshness that is to be overcome in the sized yarns. The more grease added to a starch paste, the more the adhesive properties of that paste are injured, for grease will lessen the sticking properties of any kind of adhesive. To overcome this, there has been invented the so called "size compound," which is supposed to admit of large additions of grease to the starch paste without lessening the adhesive qualities of the paste. Much secrecy is used by the makers of these compounds, and in consequence, much fraud is practiced. They are sold under varying trade names at varying prices with unlimited claims as to their efficiency. They are so numerous that the scope of this paper will not admit of a full discussion of them. However a few standard types can be mentioned.

The name "tallow compound" is often used because it is well known that tallow is the best lubricant that can be used on warp yarns. This is due to the high melting point of tallow, that is to say it hardens under working temperatures, leaving the yarns in such a condition that they do not adhere to each other. If oil be used, it remains in a fluid form on the yarn, and would cause them to hang together as do any yarns that are wet. The "tallow compound" is a mixture of tallow and oil, for the sole reason that oil costs about one-third as much as tallow, and every pound of oil the mixture contains is that much profit to the maker. His only limit is not to have so much oil that the mixture of oil and tallow has lost its resemblence to tallow. The skill of the mixing is to previously treat the oil in a way that will cause it to so emulsify with the tallow that it will not ooze out on standing, and thus show the deception. A "gum compound" is generally a dextrine which has been treated with cold water and allowed to swell into the jelly form that dextrine takes in water. In addition to this large amount of water, the compound may have as a filler, starch which has been previously treated with borax or caustic soda to give it a similar jelly like form. The claim for such "gum" is that it will make the starch stick to the yarn. If sufficient dextrine has been used it will, but it would be much more reasonable to add the pure dextrine to the starch paste. A "size compound" may then be said to consist of a "tallow compound" which has been mixed with a "gum compound," the dextrine having been found essential to overcome the loss of adhesiveness in the starch paste, that resulted from the excessive use of grease. What, then, is the remedy for overcoming this harshness in the starched yarns so there will not be required this excessive use of grease and the corresponding use of a softener or lubricant? We must look to the properties of the various starches which are commercially obtainable.

Starches may be classified into two general divisions, namely: those obtained from cereals, as corn, wheat and rice; and those obtained from roots, as the potato and cassava. The properties of those starches in the same division are practically the same, while of starches in different divisions there is a marked difference. All of the cereal starches when boiled in water give a milky, thin or limpid paste. All of the root starches, when so boiled, give a clear viscous paste. If a paste of a starch in each of the divisions be dried to a film, the cereal starch paste dries faster and results in a wrinkled form of brittle film, while the root starch paste dries much slower, and therefore results in a smooth flexible film. This is easily understood when we look at the change a starch undergoes when forming a paste or colloid form. In this change the starch goes from a granular form into a hydrated or colloid form, which means that it takes water into its combination just as burnt lime rock takes water into its combination when undergoing the process of slaking.

A cereal starch takes up less water of combination when changing into a paste than does a root starch. The root starch combines with several times more water than the cereal starch. It is this reason why a root starch gives a paste several times more viscous than a cereal starch paste. If the same quantities of a root starch and a cereal starch be added to the same quantities of water and boiled to a paste, the root starch paste will be from five to ten times more viscous than the cereal starch paste. If a yarn be drawn through these two pastes, and then through the squeeze rolls of the slasher, the thin paste will be held in the yarn only by absorption, while the viscous paste will be held partly by absorption and by adherence to the surface of the yarn. Upon the drying of the yarns the one with the surface coating will naturally be found to have dried in that form and protect the yarn better than the other. And as it is this coated surface that is wanted for its protection against fraying of the yarn in the loom, it stands to reason that a viscous starch paste is more suitable for the sizing of warp yarns.

A thick paste must not be construed to mean a viscous paste. A paste can be made so thick that it will not flow any more than jelly. A viscous paste is one that will flow perfectly yet its tenacity is so great that the flow is very slow and stringy. Therefore it does not follow that if a starch gives a thin or limpid paste that its viscosity can be increased by the addition of starch. And conversely, if a starch has a high viscosity it is possible to obtain pastes of varying viscosities by varying the quantity of starch used. This leads to the suggestion that the scientific procedure for warp preparation would be to ascertain the viscosity of the paste that is most suitable for a particular yarn for a particular purpose, and then supply the size maker with a simple form of viscosimeter so that he can measure the flow of his paste and know if he is getting what he is expected to obtain. For illustration, suppose the mill is making two yarns, No. 15 and No. 30, and it had been found that the weaving requirement for the No. 15 yarn is a paste of 4 viscosity, while the No. 30 yarn requires a paste of 7 viscosity. It would then be a matter of using such amounts of starch that the resultant paste showed by a measure of its viscosity when the proper amount of starch was being used.

Scientific writers, on this subject, state that the value of a starch for textile purposes is shown by the viscosity of the starch paste that may be obtained. Therefore a method of procedure in determining the viscosity of a starch paste has been standardized. This method is to make a 4 per cent mixture of starch and water, that is, one part of starch by weight to 24 parts of water by weight, making 25 parts, of which the starch is 4 per cent. This mixture is brought to a boil and continued boiling for five minutes

to insure a certain pasting of the starch granules. Viscosity means the rate of flow of a solution as compared with the flow of water under the same conditions. In the case of a starch paste the viscosity is measured as near the boiling temperature as possible, and the viscosimeter shows how many times slower is the flow of that paste than is the flow of water.

Having a starch of a known viscosity, that is in a 4 per cent solution, it would be simple to compute a desired viscosity in the size kettle, provided the boiling conditions were normal. What are normal conditions? Fortunately there are only two of importance, and these are easily controlled. First, is that of fermentation. If there be a sour smell in the kettle it indicates fermentation, probably the common lactic acid ferment, this ferment, as well as numberless other wild yeasts will convert a very considerable portion of the starch which is being boiled, to a form that has no starch pasting properties, causing that much loss of starch. This ferment can easily be avoided by ordinary cleanliness, or if it exists it can be destroyed by any of the usual germicides, as chloride of lime. The other detrimental condition is the use of a hard water, or water containing much lime. Hard water will produce a very much less viscous paste than soft water. Therefore the remedy is to use soft water. Surface water is generally a soft water, while a well water from much depth is probably a hard water. If a surface water can not be obtained condensed water should be used, and it can be obtained from the slasher cylinders in quantity sufficient for the size. With soft water, clean kettles, and clean size boxes, and a starch of high and uniform viscosity, the size maker would be in a position to make any paste required.

As previously stated, cereal starches have a very low viscosity, being not more than two times as viscous as water. Of the two commercial root starches in use, cassava starches vary in viscosity from 5 to 10, while potato starches vary from about 5 to 15. This variation is due to several causes, such as the quality of the cassava or potatoes being used, and the methods of manufacture. If immature potatoes be used the starch granules are immature, and the result is a lower grade of starch. Or if mature potatoes be used, and in the manufacturing process the starch be bleached by use of chemicals to improve its appearance, or if proper precaution is not taken in the drying, and it is over heated, the result is a low viscosity, and a low grade of starch so far as its use to the textile manufacturer is concerned.

Many efforts are made to put starch on the market in different appearing forms, such as "powdered," "crystal," "lumps," etc. As is well known, when starch is added to water it disintegrates into a finely divided form, irrespective of what previous form it may have had. So the so called "crystal" form and others, are only to assist in the selling of that starch, for there is no such thing as a starch crystal; starch is granular. In the corn starch industry a multitude of trade names are used by the manufacturers. The writer was for a number of years a Government chemist, and in that capacity made an extensive investigation on the commercial starches used in this country. With the exception of a so called "soluble" starch, which was nearer a dextrine than a starch, he was never able to detect any difference between any of the different brands of the same manufacturer, or any difference in the starches made by different manufacturers of corn starch. Among the many trade names, there is mentioned the one called "long staple" starch. However, the writer found it was being used on a short staple cotton.

[*Note.—In this connection we would suggest that the reader refer to the very complete discussion of cereal starches showing the figures in actual tests made by a well known chemist, which was published in the August,* 1912, *and February,* 1913, *issues of* COTTON.—*The Editors.*]

DESIGNS FOR FANCY COTTON FABRICS.

BY THOMAS WOODHOUSE AND JAMES IRELAND.

PART TWENTY-ONE.

A very effective design, and one which is largely taken advantage of in the structure of many classes of cloths, is the combination of twills or other simple weave effects on a diamond base. These cloths often contain practically the same number of threads per inch as picks per inch, and the yarns being about the same count, the result in the fabric in most cases resembles closely the effect on the design paper. Thus, the design illustrated at *J*, Fig. 91, would under these conditions, give a perfect diamond on a plain ground. The draft for this design appears at *K* and is termed a pointed draft, while the weaving plan consists of the first 16 threads and all the picks as shown by the part bracketed *L*. If, however, the already mentioned conditions of numbers and yarns are departed from, an entirely differen effect may result. For example, the cloth illustrated in

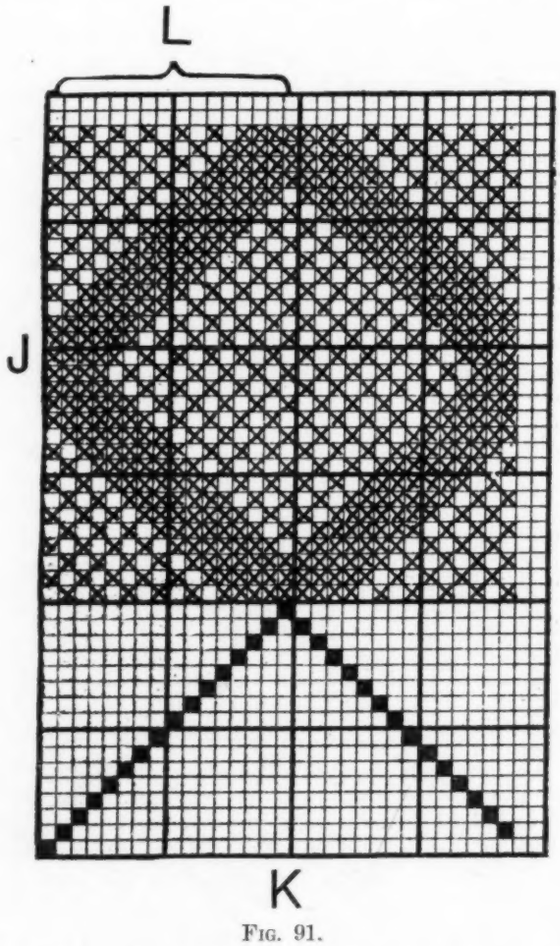


FIG. 91.

Fig. 92 has been woven from the particulars given in Fig. 91, but in this cloth there are 92 threads per inch and only 56 picks per inch. This great difference alters the character of the floats considerably, for those in the direction of the warp are elongated, and the effect which under ordinary condition would be a diamond, is now of an ogee nature; in

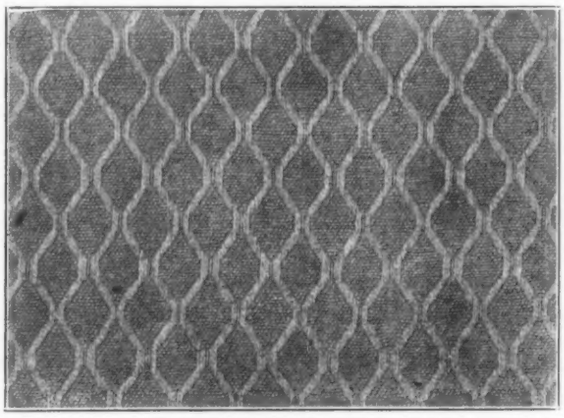


FIG. 92.

addition, the other otherwise plain cloth inside the broad bands is now of a warp rib character.

There are different ways of constructing diamonds, and a knowledge of a few principles enables the designer to get the maximum number of effects with a minimum effort of memory. A design such as that illustrated in Fig. 91 could be prepared by first filling in the requisite number of

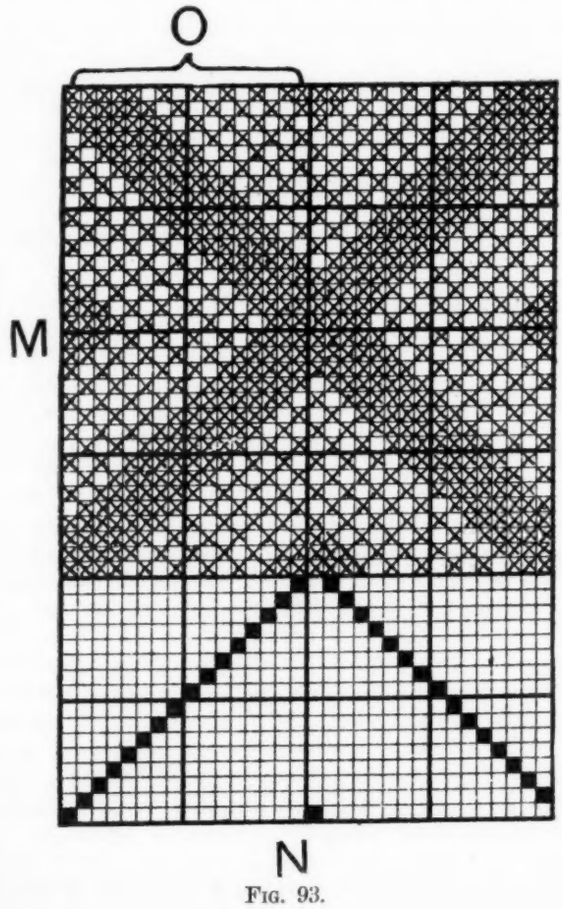


FIG. 93.

threads and picks with the plain weave; after this the blanks between two or more diagonal rows in both directions could be filled in to form light, medium, or heavy bands of floating threads. These floats must, if made in this way, be on an odd number e. g., 3, 5, 7, etc. Another way is to run the floating thread or twill forward for half the number of threads plus one in the design, and then to reverse the twill until the total number of threads have been marked. At this stage the partially completed design will occupy all the threads and a number of picks equal to one more than half the total number. Finally, reverse the direction of the twills on the remaining picks, and fill in the plain weave. The number of harnesses required by this method would always be one more than half the number of threads in the design.

A reference to the draft *K*, Fig. 91, will show that in all such cases, the first and last harnesses carry only half the number of threads carried by the others. By slight modifications of the design, however, all harnesses may be arranged to carry the same number of threads. For example, draft *N*, Fig. 93, conforms with this principle. The design *M* in this case contains two threads and two picks

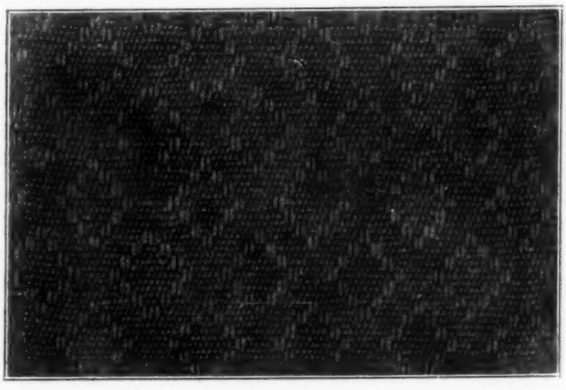


FIG. 94.

more than that at *J*, Fig. 91, and the former has been made by continuing the 7-thread twill from corner to corner, starting the first thread with four marks at the bottom and three at the top. This method of drafting naturally causes the first and seventeenth threads to be of the same order, i.e., with a float of seven near the middle of each. It therefore becomes necessary, in most cases to add further marks on each side of the first thread in order to make a suitable spot in the center of the diamond; in the design this spot is obtained automatically by the draft. The weaving plan would still be on 16 harnesses, but on 32 picks. If this design had been made on 30 by 30, only 15 harnesses would be required.

Fig. 94 illustrates another cloth where the main features are diamond figures upon a warp rib or repp ground. The dark green warp contain 128 threads per inch, but there are only 28 picks per inch of crimson filling. This is a most economical method of making cloth, for it is evident that the production, with such a small number of picks per inch, will be very great. One complete unit of the design is illustrated at *P*, Fig. 95, and it will be seen that the warp threads run in pairs throughout. In addition to this, contiguous pairs of threads cut or weave opposite to each other, i.e., the two contiguous threads in each pair always

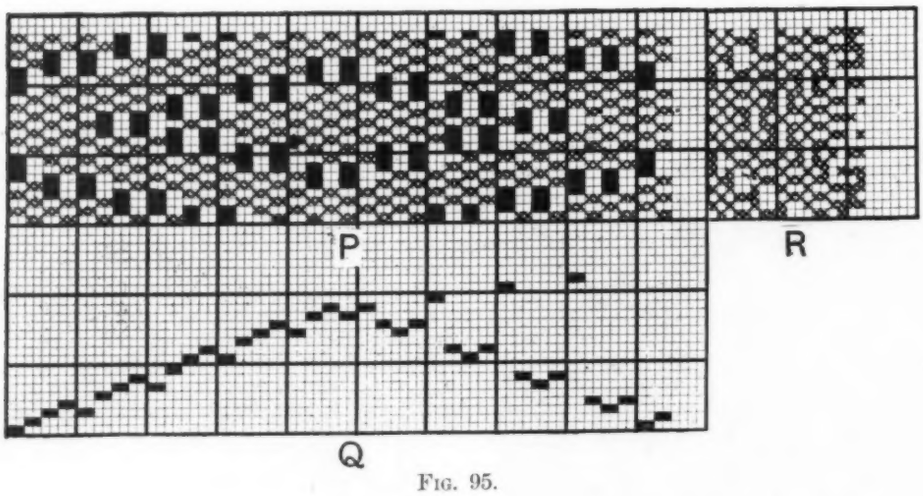


FIG. 95.

occupy different sides of the cloth on the same picks. This fact, coupled with the large number of threads per inch, causes both sides of the fabric to be practically the same; in other words, it is a reversible cloth. The weft consequently shows little, and yet sufficiently to cause a shot effect of a subdued nature. All the threads weave plain except where they float over three successive picks to form the diamond figures, but this plain structure appears on the cloth in the form of a repp as mentioned. It is this great difference in the relative numbers of threads and picks which causes this structure, and it is the same inequality in numbers which is responsible for the distorted appearance of the diamonds on the design paper. In this design the diamonds are detached, one appearing complete in the center of the design, and the other being made up of the four sections at the corners. The draft of the design is shown at *Q*, and the weaving plan on 18 harnesses and 22 picks at *R*. The draft is irregular, and the threads in the repeats on harness 16, 17 and 18 are far removed from each other that it may be desirable, although not necessary, to have the harnesses knitted to the draft, and thus simplify the work for the weaver.

(To be continued.)

Portuguese exporters of cotton waste and old jute (from bales of American cotton) who have been accustomed to sell through a foreign market, advise an American consular officer that they desire to ship direct to American dealers. Those interested should apply to the Bureau of Foreign and Domestic Commerce and refer to file No. 15128.

A firm in Latin America is in the market for textiles. The consul sending the report has forwarded cable address and samples of the textiles in demand and they may be obtained from the Bureau of Foreign and Domestic Commerce and its branches. American manufacturers are requested to send samples with prices. Reference furnished. Correspondence should be in Spanish. All inquiries should refer to file No. 14479.

Are you with us on this? Read page 247 and tell us about it.

KNITTING DEPARTMENT.

MANUFACTURE OF LADIES' HOSIERY.

BY "KIM."

As an introduction to this article on the manufacture of hosiery let us occupy a short space to describe some of the advances made in the last twenty years. Formerly the business was confined mostly to the New England states and Pennsylvania, while now there are mills in almost every state in the union, some of the New England states employing thousands. I have had experience in one mill which, when in full operation, could produce forty thousand dozen per week.

We will go back to the time when the old round frames were used, making the long tubular piece of work the length of one pair of stockings. The foot, heel and toe were cut in this tube with scissors and seamed in with a plain and single stitch sewing machine.

From this we move forward to the machine which was placed on the market whereby the heel and toe could be knit in by hand by raising and lowering the needles by hand, but this was used only in course gauges and production was small.

Next came the semi-automatic whereby the needles in heel and toe were operated by pickers; next the full automatic; until today we have a machine built that will work successfully 240 needles in a 3¾ inch cylinder. In the old machines when 160 needles in a 3¾ inch cylinder was placed on the market it was thought wonders had been accomplished and the highest possible point reached. Today our full automatic machine has the automatic change of stitch, yarn changer, stop run bands, high splice, double sole and yarn twisting attachments. At the same time development of the full fashioned line has become a large factor, while the dyeing and finishing have undergone the same great changes. With an up-to-date plant and machines, a manufacturer can produce most any stocking desired by the trade.

In writing this article it will be a rather difficult matter to determine on any one particular gauge and style of goods,

because there are so many varieties of such goods on the market. These range from 160 needle 3¾ inch cylinder to 240 needle with the same size cylinder, while cotton, mercerized cotton, worsted tram silk, artificial silk and in some cases merino yarn is used. Again they may be made of a combination of a fine thread of tram silk plaited on a cotton thread, or a fine thread of artificial silk plaited on a cotton thread. Weights vary according to the gauge of the machine used, the number of yarn used, the length of the goods, and the depth of the welt.

Let us start the making of a ladies' stocking on a 220 needle 3¾ inch machine, 48 gauge needles with a 54 or 60 gauge hook. We will use 2/70's combed Egyptian, gassed and mercerized yarn. This yarn is usually delivered to the mill in the natural color on cones, and allowance is made by the spinner for the weight of the cones and the paper in the case.

On this class of goods the rib machine and winder are uncalled for as yarn is delivered on cones and we have no rib top on this hose.

Place one cone of 2/70's yarn on the knitting machine, which is the same in construction as the machine used and described in my previous article. I should state in the beginning that a ladies' stocking made on a circular latch needle machine is not made by the same stitch from top to toe. The stocking is started on the machine at the top of the leg with the stitch very loose, which insures a good width at the welt. The distance down the hose for the loose stitch is to be the length of welt desired; goods are made with two, three and four inch welts, therefore the distance the loose stitch is run should be twice the length of the welt desired, as welt is double when the hose is finished.

It may be well to describe how this different length of stitch is produced as three different stitches are used at different parts of the hose. As stated, the machine is the same as one previously described, therefore a description at this point will be uncalled for. An attachment known as the fashioning device will be necessary in making ladies' hosiery. This is a wheel, stationary on the shaft to which the drum is attached and which moves each time the drum is moved. This wheel contains three cams, the first for the wide and fashioned part, the second cam for the heel, and the third cam for the toe. These raise above the surface of the wheel.

Resting on the cam which the drum brings into position and on which the plugs in the connecting arm rides, is the arm which connects with the upright post, which in turn connects with the bed plate or the ring on which the bottom of the cylinder is resting. The connecting arm contains three separate plugs which are lowered or raised by the use of screws in the top of each. The first plug is used in making the welt and the wide part of the leg; the second plug the ankle and foot; the third for the heel and toe.

Start the machine with the starting point on the chain in position, which is usually marked by a painted or brass link, and with the drum also in proper position. This will find the first plug resting on the highest part of the fashioning cam on the wheel. The machine is now making the loose stitch for the welt. The desired stitch is secured by the operation of the screw in top of the plug; the farther down the screw is turned, the higher the cylinder will be and the looser the machine will knit. There is always a limit to the length of the stitch; if too long a stitch is drawn, drop stitches and cuts will appear in the work, therefore the stitch must not be too loose, care being taken to just keep on the safe side.

The length of the welt stitch is controlled by the number of links in the chain. Having run down the desired distance and having reached the length of the welt, the high link is now in position to operate and cause a movement of the drum, at the same time bringing about a forward movement of the wheel containing the fashioning cam.

The fashioning cam is made with one immediate step down while the balance of the length is a gradual decline until the surface of the wheel is reached. This immediate step down in the cam allows the machine to change and make a decidedly tighter stitch; say the step down is between 1/32 and 1/16 of an inch, this allows the cylinder to fall, which produced a shorter and tighter stitch. The stud remains resting on the cam in this position until the proper distance is reached to again start the drum in action. This distance is controlled by the number of plain links in the chain between the high link for changing from the welt stitch and high link for starting the next change.

The machine now changes from the medium to the highest stitch, which is carried through the ankle and foot. This is secured by three movements of the drum and the wheel containing the fashioning cam, which produces a gradual and an indistinct change of stitch from medium to the tightest stitch possible. At this point the shape of the ankle is made, and a stocking with a large loose ankle can never be finished to look well. Keep the stitch tight to a point just where the machine will not produce cuts and bad work. The adjustment in the change of stitch is secured by turning the screw in the second stud. The chain is in position to place the machine to work on the heel. Making the heel and toe have been described before, therefore it seems unnecessary to describe this process again.

In making this class of goods the heel and toe must be what is known as reinforced. This means an extra thread inserted at the beginning of the heel and toe and working this extra thread throughout the heel and toe process. On stationary cylinder machines this extra thread is inserted by what is known as the yarn twister. This attachment is a fine, and in some respects, a complicated piece of machinery, and great care must be used in adjusting it. The work of this part is at the beginning of heel and toe, to twist the extra thread on the 2/70's, which has been running through the leg, and to remove this thread when the heel and toe are complete. There are so many different types of yarn twisters, built on such extremely different lines, it is beyond my descriptive power to thoroughly outline the attachment. In making the heel and toe, the machine is knitting two yarns, therefore the stitch must be drawn somewhat longer than that made on the ankle and foot. The heel and toe stitch is made longer or shorter in the same manner as the stitch in the leg, only the screw on the top of the third plug is used. After the toe is completed, comes the looper courses, which are knit on the same stitch as the foot.

Such goods are made in the string and cut apart by the operator at the point where the stitch changes from looping courses to start the stitch for the welt. After this, the operator cuts the stockings apart, pulls them on the arm, looks them over carefully and turns on the wrong side for the looper. Figure 1 shows a good record card. One operator takes care of twelve or fifteen machines, cuts, turns, inspects the work, and ties in dozens. It is also a part of

the operator's work to observe the quality of the work each machine produces. If imperfections, such as cuts, dropped stitches, holes in the heel and toe, the extra thread not being inserted at the proper point, etc., are found, the machine should be stopped until fixed, so as to make perfect work. Inexperienced or careless help do not watch for these faults close enough and it is a part of both the foreman's and fixer's work to train the help and insist that they watch the work closely, so as to reduce the seconds and waste to as low a point as possible.

Another point to which the foreman and fixers must pay attention is the length of the goods. Stockings from each machine should be tried on a board, with a mark specifying length samples were made, each morning after the machines have been in operation about one hour. Do not try much before this time as when the machines are cold they knit a trifle tighter and make somewhat shorter work than after they are warm and in a thoroughly easy running condition. Stockings should be tried on the board at, say, 8 A. M. and 1:30 P. M., by the fixer in charge of the section. If he finds the stockings much too short to come to the mark on the board he should investigate seeing there are no loose parts, no extra drag on the yarn and that the fashioning device has worked properly.

If the stocking comes beyond the mark on the board, the fixer should see that the proper tension is on the yarn; that the sinker head is down; and that there is no dirt under the cylinder. If no defect can be found, the fixer should change the stitch, using judgment to get the proper length. A mark

NAME	DATE	NO. OF MACH	HRS	STYLE	MEN-DERS	SEC-ONDS	WASTE	AMT TO BE MADE	NEE-DLES	SINK-ERS	PRICE PER DOZ OR HRS.	REMARKS
TOTAL												

FIG. 1. KNITTERS RECORD CARD.

should be placed on the machine and when it has made two stockings after receiving the adjustment of the stitch, the operator should cut and hang on the machine another stocking, and the fixer should return and try it on the board to be sure the machine now has the proper adjustment.

Great care should be observed in securing proper lengths, long or short stockings mean seconds, and seconds must be kept to the lowest possible point to assure profit to the manufacturer. There will be some variation in the yarn which will cause uneven lengths, but the usual trouble from this point is due to carelessness or neglect on the part of the fixer or the foreman. Again, the mill owner must do his part by instructing fireman and watchman to keep the temperature of the knitting room around 70 degrees at all times. A fixer cannot be expected to produce good work in a cold room.

A manufacturer should, when possible, settle down to one grade of yarn, as different spinners use different methods. The same may be said of the mercerizing process, for with these slight differences in the yarn, the knitting machine requires different adjustments. When a knitting machine is once adjusted, the less often changes are made, the better it will be for the machine.

The fixer will find it necessary to run this yarn over oil, and to do this he should have a bottle containing a wick made of some soft material, attached to the top of the machine. Use only a good grade of stainless or olive oil. Allow the yarn to pass over the wick. This will be a great help in the knitting and at the same time it will carry oil to the sinkers and top part of the needles. A word more about oil. While it is necessary to keep the running parts of the machine well oiled, it is not necessary to flood the machines. This is a great waste of oil and another great cause of seconds. The fixer should oil the machines or have them oiled under his supervision, and do this daily. He is familiar with the parts subjected to the most friction and will use more care on such parts than the ordinary operator. Keep the oil away from the sinker head and cylinder as much as possible. When a lubricant is necessary on these parts, use vaseline by placing it around the butts of the needles.

It is well to train operators to wipe all parts under the machine twice each day to prevent any oil which has worked through the machine from dropping on the goods. The fixer, or foreman in charge, should make a round of inspection each day to see that this is done, and bear in mind that later some of these goods may be selected for dying light and delicate shades or for bleach, and each spot means a second. The successful foreman is the man who produces work with a small percentage of seconds, and at all times the manufacturer bases the value of the man on the work produced in the department of which the man is in charge.

In fine lines of ladies' goods it is almost necessary to put in what is known as high splice and double sole. This is done by an attachment known as the high splice, which works in the following manner: at a point 2½ or 3 inches before the machine comes to the heel, a large link in the chain throws this attachment into action. Space in the yarn carrier is cut away on the first side of hole which the 2/70's are passing through to the needles; the splicing thread which is used in the high splice is usually 1/60's or upward according to the desired weight required. If possible, it is well to use a combed sea island yarn for this work, as the yarn is so fine, the better the grade used, the less the breakage will be, and each break usually produces a second.

It is well for any manufacturer making this line of goods to make a line exactly the same, but omitting the high splice and double sole. This will give an opportunity to work in with the goods which have been made without the double sole and high splice goods from the other class, which otherwise would go as seconds.

Getting back to the attachments, the yarn is usually wound on cops and a cop is placed on a post revolving with the yarn carrier. The yarn carrier is a very narrow affair which fills the space cut out of the main yarn carrier. The high splice yarn carrier acts on the rise and fall system. The link in the chain has thrown the cam in position on the left hand side of the machine to throw down this carrier, thus allowing the yarn to catch on the first short butt needle and feeding the yarn to the needle until the opposite side, or last short butt needle is reached, where the back end of the splicing carrier arm connects with the throwing out cam and raises the splicing carrier to an elevation where the splicing yarn passes over the needles, knitting the splicing yarn only on the short butt needles and carrying the same high enough to pass over the long butt needles, this leaves a loose thread on the inside of the cylinder with each revolu-

tion of the machine, which must later be cut out. Some mills do this with shears by hand, but the most economical and practical way is with a small machine which is inexpensive and built especially for this purpose.

Another way to cut the corners on the cost in manufacturing this line of goods, if the machine is equipped with a yarn changer is to remove the 2/70's as soon as the toe is complete and insert one single end of 1/20's common carded cotton, and run this down for three inches, then have the yarn changer remove the 1/20's and replace the 2/70's. This will make considerable difference in the cost, as 2/70's mercerized is far above 1/20's carded cotton in price, while this space is used only for the looper courses and trimmer on the welting machine. Some goods have about half of the inside of the welt made of the cheap grade yarn; this does not show, while the soft yarn is somewhat of a help in concealing the stitch on the welting machine.

All pieces of waste that come from the knitting machines should be raveled down to one end, put on the winding machine, raveled back and wound on bobbins to be re-knit into goods. This yarn should be wound a second time with all the tension it will stand in order to straighten out the kinks caused by the first knitting. By doing this the foreman can keep waste down to a very small percentage.

Waste is one thing that at all times should claim the foreman's attention. By weighing each operator's waste daily, the foreman can tell at once when an operator is running too large a percentage and should investigate and learn the reason.

When I find too much waste coming from a set of machines, I look over each piece of waste to learn the cause. If the operator is at fault I at once show where and how to overcome the difficulties; if the machines are running badly, it is up to the fixer to get busy and do his part and keep on doing so until the waste is brought down to the proper point. If the yarn is at fault, the buyer's attention is called and the spinner notified and the fault which is causing the trouble fully explained.

In making "silk boot" goods, a machine equipped with a yarn changer will be a real necessity. I have made this line on machines when the yarn was changed by hand, but production is small and the cost per dozen is too great. This hose is made the same as the class mentioned in the beginning of this article, only when about eight inches of leg is done, the 2/70's yarn is removed by the yarn changer and the silk is started; from seven thread to ten thread is usually used. This silk is very expensive and all concerned should make it a point to pay special attention and make as little waste as possible. If the silk contains gum, the stocking should be made on the knitting machine almost one-half size smaller than the size desired when finished. If the boot is to finish twenty inches, this should measure eighteen and one-half inches from the machine. Silk yarn should be knit good and tight and run over oil the same as mercerized yarn. The gum is for no other purpose than to hold the silk threads together when knitting and before the stocking is dyed, this is removed. In removing gum from the silk there will be a loss in weight of from 20 to 25 per cent, therefore, in knitting gum silk a tight stitch is necessary, as if the stitch has been knit loosely, after the boiling off process there will be no body to the goods. The heel and toe on such goods should be made of mercerized yarn and the looping course of cotton.

There is another grade of silk used in making hosiery which is known as boiled off and weighted silk. In this silk the gum has been removed and there will be no loss from this cause, the boiling off and weighting is done by the silk mill. For example, the silk mill will take a six thread silk and by giving this thread a treatment will build it up in weight where it will be equal to an eight thread silk, while the yardage remains about the same. This silk is not used to any great extent to my knowledge. One bad feature is that such silk is so smooth it catches hold of every rough article coming in contact with the work, which pulls and draws, causing seconds. When on this class of work, if the operator's hands are rough or finger nails ragged, defects can be seen in the work where silk has been pulled. Another fault is that after such goods have been finished, folded and placed in boxes and allowed to remain for any length of time, they become tender at the fold, sometimes so much so that the silk cracks. It is up to the manufacturer to decide if it is worth the gain. I have found the gum silk preferable and the most easily handled in the knitting room.

Silk of any quality is very hard on the needles in the knitting machine. A counter sunk milled rivet should be used and both operator and fixer should be on the constant lookout for needle marks. The best way to find such marks is to pull the stocking on the board, hold the board flat on a level with the eye looking toward a window; look each side over carefully and if needle marks are in the hose, by this means they will be seen and must be removed by removing the needle causing the damage from the machine.

Another cost saving point will be for the manufacturer to have a few machines of 204 needle 3½ inch cylinder for making sizes 8 and 8½. This will also make a much neater ankle and foot for the small sizes than the 3¾ inch cylinder. Some mills have work go direct to the welter from the knitting machine. By having the knitter turn the work and sending first to the looper, one cost on turning is saved, therefore I always send the work to the looper from the knitting machine.

In the looping of ladies' goods, the looping machine must be equipped with a trimming attachment. Cut goods do not ravel out as badly as goods pressed off the knitter. The trimming device is a simple attachment which cuts off the surplus which the operator has held while putting the stocking on the points; it consists principally of a pair of knives, cutting like scissors and a brush. First, the knives should be kept sharp and set low enough to cut next to the stitch on the points. The brush should be allowed to brush the work and remove the half stitch which the knife has cut. If the knife is set too low, at intervals the stitch on the point will be cut, thus making a hole in the looping line. Have the knife and brush set as stated, have the operator run the work on straight, and very little trouble will be had at this point.

Occasionally the foreman should go around the loopers, start the ends and ravel down a few stockings on each machine to learn if the operator is putting work on straight, and if it is straight work it will ravel down to one end. Where the trimmer is used, help will become careless unless followed very closely by the foreman. Poor looping can ruin a good stocking.

The next article will be on the welting and finishing.

Dyeing, Bleaching and Finishing.

THE PRESENT DYESTUFF SITUATION.*

BY. E. C. KLIPSTEIN.

At the outbreak of the present war, there was a two months' supply of dyestuffs in the United States. From the first of August to the end of December, the importations of dyes were practically normal, so that, on January 1st. there was still a supply of dyes in the country for two months. Since January 1st, the importations have been decreasing and the reserve supply, therefore, is gradually disappearing. From the present time forward, the importations will practically cease, so that it is now a question of weeks until the reserve supply becomes exhausted and the textile industries will be brought face to face with a real famine in coal tar dyes.

It appears that the average monthly quantity of alizarines and indigo for the years 1913-14, was 1,101,631 pounds, while for the last five months of 1914, from August to December inclusive, it was 1,666,944 pounds, so that we actually imported in the last five months of 1914 an average monthly supply, which exceeds the two years' monthly average by 65,313 pounds or 5.9 per cent. On the other hand, the average monthly value of the three classes of dyes above mentioned was, for the two years, 1913-14, $781,374, while for the last five months of 1914, August to December, it was only $772,605, a decrease of $18,769, or 2.42 per cent. This difference in value was due to the decline in the prices of dyes during 1913 and 1914.

Such being the case, the panic which seized the dyestuff consumers in August, and has gradually augmented in force since, would seem to have been unjustified. It was, however, very logical, being based on actual conditions:

First—The chief raw materials for the dye industry are also the chief raw materials for explosives, and nations are willing to pay more for killing men than for dyeing their clothing.

Second—The sudden advance in the cost of living, the increased cost of freight and insurance, the lack of labor caused by the mobilization of armies, brought about a sharp advance at the source of supply of all dyestuffs, and, therefore, necessitated a material advance in prices to consumers everywhere. The situation in Germany is expressed by the following circular recently issued by the whole body of German coal tar dye makers:

Owing to the increased cost of raw materials, also the reduction of our working force by one-half on account of service in the army, the reduction of our output for lack of foreign sales, which means the doubling of our overhead charges, we are compelled to materially advance our prices.

The advance in raw materials includes coal tar products, sulphuric nitric and hydrochloric acids. The cost of production is further increased by the strenuous measures taken by the German government to insure supplies for the army.

(Signed)

Actien-Gesellschaft fuer Anilin-Fabrikation, Berlin.

Badische Anilin & Soda-Fabrik, Ludwigshafen am Rhein.

Leopold Cassella & Co., G. m. b. H., Frankfurt am Main.

Chemikalienwerk Griesheim, G. m. b. H., Frankfurt, am Main.

Chemische Fabrik Greisheim-Elektron, Frankfurt am Main.

Chemische Fabriken vorm, eWiler-ter Meer, Uerdingen am Rhein.

Farbenfabriken vorm, Friedr. Bayer & Co., Leverkusen bei Coeln a/Rh.

Farbwerke vorm. Meister Lucious & Bruening, Hoechst am Main.

Farbwerk Muehlheim vorm. A Leonhardt & Co., Muehlheim am Main.

Anilinifarbenfabrik Carl Jaeger, G. m. b. H., Duesseldorf-Derendorf.

Kalle & Co., Aktien-Gessellschaft, Biebrich am Rhein.

Wuelfing, Dahl & Co., A.-G., Barmen.

The German government has put very severe restrictions on the exportation of dyes. Dealers are prohibited from exporting at all, while manufacturers are only allowed to ship to former customers and in quantities not greater than formerly used.

England promptly placed an embargo on the exportation of coal tar products, in order to conserve the supply for her own factories. As she had depended on Germany for about ninety per cent of her consumption of dyes, the absolute cutting off of the German supply at once precipitated a real dyestuff crisis. She possesses, however, several large plants, which produce the raw materials, such as aniline oil, nitro-benzol, the diamines, etc. She has one alizarine plant, one indigo plant and two large plants capable of producing a large variety of finished dyes. All these plants are being worked to their fullest capacity and also being enlarged. Nevertheless, the seriousness of the situation in England may be judged from the fact that ordinary natural indigo is today selling at $3.00 per pound. In order to hasten relief the British government is considering ways and means to assist the manufacturers to increase their production of dyes to such proportions as to make England independent of the world.

Very much the same state of affairs exists in France, Russia and Japan, which are all large consumers of dyestuffs.

A recent issue of "Commerce Reports" has the following to say about Italy:

"It is rather surprising to learn that there is a shortage of dyestuffs in Italy, for one would have thought supplies could have been obtained from both Switzeland and Germany. It is possible, however, that Italian dyers are not prepared to pay the extremely high prices which prevail in England at present, so that the Swiss colors are virtually all finding their way to other markets, while transport difficulties may be preventing the delivery of German dystuffs. The position is evidently serious, for at a meeting on the subject, just held in Milan, it was stated that many dyers had been forced to close their works entirely on account of lack of dyestuffs, while most of the others were on short time. It was proposed to attempt to establish the manufacture of

*Presented at the Memphis meeting of the American Cotton Manufacturers Association.

dyestuffs in Italy. Special reference was made to the English scheme, and it was considered that one on the same lines would be suitable for Italian conditions."

It may be mentioned that Italy, like England, has no duty on dyes, but unlike England, she does not produce the raw materials. In this respect Switzerland resembles Italy, and yet, next to Germany, Switzerland is the largest producer of coal tar dyes, including indigo. Under ordinary circumstances, the Swiss could have produced all classes of dyes in sufficient quantity to have materially mitigated the severity of the impending famine—but just here is shown the importance of producing the raw materials in the country making the finished dyes. Switzerland has no coal, and, therefore, no coal tar. For her raw materials she is dependent on Germany and England.

When she began the manufacture of indigo, she insured her supply of raw material, aniline oil, by purchasing The Clayton Aniline Company of Manchester, England, whose chief manufacture is aniline oil. The raw materials for a large proportion of the other dyes produced, were purchased from Germany. At the outbreak of hostilities, the German government prohibited the export of raw materials to the Swiss dye works, except under a guarantee that none of the finished dyes should be shipped to any country at war with Germany. This guarantee the Swiss refused to give, and, therefore, had to discontinue the manufacture of a great number of dyes. The British government cut off the supply of aniline oil by placing an embargo on its exportation, thus forcing an entire suspension of the Swiss dye works. Subsequently, however, an arrangement was reached by the Swiss with the English government, permitting the exportation of aniline oil and other raw materials to Switzerland, thus enabling the Swiss to resume the manufacture of indigo and such other dyes as can be produced from such raw materials as England can supply—and that is what the Swiss are doing today.

In the United States there are four factories capable of producing a limited number of dyes, but they must depend for a part of their raw material on Germany, and are, therefore, very much restricted in their production. Owing to the enormous demand for toluol, benzol, picric acid, etc., caused by their use, at high prices, for explosives, the coke producers of the United States are largely increasing their capacity to recover the by-products of the coke ovens, from which all these raw materials are obtained.

The necessary installations are being pushed as rapidly as possible, so that in time, our dye manufacturers will be able to obtain, or produce, the chief raw materials needed. But the erection of the necessary plants is always slow, and at best, we must wait many months for any relief by the American dye works. Altogether, we are now approaching the supreme test of our resourcefulness.

During the past eight months, we have been asked a thousand times why the United States, England and France, each possessing an abundant supply of raw materials, do not make their own coal tar dyes. As England is a free trade country, and France and the United States are high protectionists, the result cannot be charged altogether to the tariffs of these countries. England, today, without any tariff, is really in a better position than either the United States or France with highly protective tariffs.

Evidently, there is something else back of this remarkable phenomenon, and that something is to be found in the patent laws of all three countries. Commencing with the patent on alizarine and ending with the patents on synthetic indigo, all three countries have furnished Germany with the means of monopolizing the coal tar dye business. On the money made out of patents obtained in these three countries, Germany has accumulated the capital which enabled her to build the immense plants, which are the wonder of the world, and the controllers of the dyestuff business today.

An Englishman, Perkins, discovered aniline dyes; an English firm, Brooke, Simpson & Spiller, together with a French firm, A. Poirrier & Co., of Paris, first became prominent as manufacturers of aniline dyes nearly fifty years ago, and yet, today, Germany controls the coal tar dye industry. In order to change this condition, all three countries must change their patent laws.

As concerns the United States, however, we must still place much of the blame for this anomalous condition on our tariffs. Since 1862 this country has been avowedly controlled by the protectionist principle of building up American industries by means of the tariff. During the past forty years, we have raised our tariffs almost to the point of prohibition in order to establish home industries, and yet the coal tar dye schedule has been so manipulated as to destroy the industry instead of building it up.

I am afraid that this lamentable result must be attributed largely to the textile manufacturers of the United States themselves, because in their desire for free raw materials, they have aided the European dye-maker and patent owner in killing off the struggling coal tar dye industry in the United States. This is a point which I do not propose to argue, but simply content myself with appending an abstract of the United States tariffs on cotton and dyestuffs since the foundation of the government. From this it may be seen, that while the duty on the manufacture of cotton has steadily gone up, the duty on dyes has steadily gone down, until nearly 50 per cent of the coal tar dyes are in the free list.

This policy was all right when indigo and cutch and cochineal and logwood and fustic came from tropical countries and could not possibly be produced in the United States. Although it helped the foreign producer by broadening his market, it did no harm to any American manufacturer. But the situation changed entirely on the advent of synthetic dyes, which can be produced here as well as in Europe. To put synthetic indigo and alizarine in the free list is exactly equivalent to giving the foreign dye maker protection to the amount of the duty remitted.

Just how the present situation has been brought about, may be seen by referring to the public hearings before the Congressional Committees, which are public property.

On Tuesday, March 19th, 1912, the Senate Finance Committee was giving hearings on the proposed Underwood Tariff Bill, putting a duty of 10 per cent on indigo and alizarine dyes. A representative of one of the German dye-makers expressed himself as follows:

"As an importer of aniline colors, I am in favor of a reduction (of duty), for the benefit of American (cotton?) manufacturers, especially indigo. Ninety-eight per cent of the indigo used is synthetic, which is controlled absolutely by patents, and cannot be produced in the United States on account of patents."

Another German manufacturer of indigo wrote the following brief to the same committee:

"The purpose of this letter is to briefly call your attention to two paragraphs on the free list: Section 487, alizarine, natural or artificial, and dyes derived from alizarine or

from anthracene; Section 592, indigo (meaning vegetable and synthetic).

"We sell these products to the cotton, woolen, paper, leather and paint industries in the United States; we make long-period contracts and import against these contracts; the attached proforma contract shows the obligation incurred by the buyer in making these contracts.

"All these fast dyes have been on the free list under the tariff laws of 1883, 1890 1894, 1897 and 1909. They are not manufactured in the United States and never have been and there is no question of protection involved. They were originally put upon the free list for a definite and specific purpose, and they have been kept there for 30 years for like reasons.

"The object of putting indigo, alizarine, and anthracene dyes on the free list was to enable the textile industry of the United States to produce coarse goods, which were, so far as durability of color was concerned, equal not only to textile fabrics made in other countries, but the highest grade of textiles made here.

"The object of the manufacturers of these fast dyes was, from the very beginning, to place them within reach, as to cost, of the manufacturers of coarse cotton goods, for in no other way could a large consumption be secured."

In support of the above pleas, a southern indigo consumer testified that the cost of the indigo used in making his denims was 7½ per cent of the cost of his fabric. It pained him to think of the hardship that would be caused the poor American laborer on account of the additional cost, caused by the proposed 10 per cent duty on indigo.

His statement was confirmed by the president of the American Cotton Manufacturers Association, and further supported by a brief presented by Mr. Green of Providence, R. I., in which occurs the following prayer:

"We petition that for these reasons, indigo as well as alizarine and anthracene dyes be left on the free list."

This prayer, for the foreign patent owner and dye-maker, was signed by 38 of the most prominent cotton manufacturers in this country. In consequence of these prayers, the proposed 10 per cent duty on indigo and dyes obtained from indigo and anthracene, was withdrawn, while dyes obtained from carbazol were for the first time placed in the free list.

That is the way the American dye consumer has been pulling the chestnuts out of the fire for the foreigner, during the past forty years. The coal tar dye industry is adapted to this country because of our abundant supply of raw materials, and with fair tariff treatment, would have flourished and extended. It has not had fair treatment.

I am not a believer in bolstering up an illogical industry with tariff duties, but I am still less a believer in imposing duties for the express benefit of other countries. When you put a duty on raw material that *must* be imported and then put the finished product in the free list, you are protecting the foreigner and actually discriminating against the home manufacturer. That is just what Congress has been doing since 1883. The American dye manufacturer must needs make the prayer of the backwoodsman: "Oh Lord, if you won't help me, don't help the bear." For the past forty years Congress has been helping the bear. Let us hope that in the future the American dye consumer will be willing to "live and let live," and exert his influence more generously in favor of the American dye maker.

There is no excellence without great labor and sacrifice. You gentlemen, if need be, must be willing to sacrifice a few years of cheap dyes in order to enable your fellow American dye manufacturers to make us independent of the world as to coal tar dyes.

Just here I will venture to sound a note of optimism. There has never been a more favorable time for laying the foundation of a coal tar dye industry in this country than the present. The patents owned by foreigners on the dyes themselves and their raw materials, have run out, leaving the industry free. The machinery needed is also patent free now, and much cheaper than forty years ago. We produce in abundance the raw materials, and what is more, we produce also the men to handle them.

During the past forty years, the universities of the United States have raised their standard of scholarship to the European level, so that today we have thousands of young men, coming out of our universities and technical schools, who are fully able to compete with Europeans, whether from Germany or France or England. Let us trust in the young men. Even under our old crude backwoods education we have contributed something to the world's progress—anaesthesia for instance, and the cotton gin, the sewing machine, the telegraph, the telephone, the phonograph, the typewriter, the electric light, the aeroplane, the submarine, and what, for some people, is of more importance than all the rest put together, the rubber cored golf ball. There is a possibility then, that if we seriously take up the dyestuff problem, we may at least hold our own with Europe.

Let us hope—and be Americans.

DISCHARGES ON INDIGO.

BY A. SUTEAU.

For discharging indigo the use of formaldehyde-sulphoxylate in place of chromate is now general in Russia, as it does not attack the fibre. Certain defects appear unless the process is carried out carefully; the steaming must be carried out in a well-regulated rapid ager, and even if Rongalite LC is used, partial re-oxidation occurs unless the process is completed in one day. Moreover, it is almost essential to add discharge salt and anthraquinone, and this increases the cost to such an extent that the hydrosulphite process is not much cheaper than the older method.

As indigo is rapidly reduced by warm alkaline hydrosulphite, an attempt was made to obtain a process in which an insoluble hydrosulphite was printed on to the material, and the active sodium hydrosulphite formed by passing through a weak alkali solution. In experiments with zinc, barium and calcium hydrosulphites the zinc compound gave the most satisfactory result. If precipitated in the presence of zinc oxychloride, zinc hydrosulphite is at least as stable as formaldehyde-sulphoxylate.

To prepare one kilogram of the discharge paste, 150 grams of powdered hydrosulphite (B.A.S.F.) and 30 grams of zinc oxide are mixed together with 100 grams of ice-cold water, and 100 grams of zinc chloride solution (140 degrees Tw.) added to the mixture. After stirring to a thick paste the mass is made up to one kilogram with British gum. After standing several hours the mixture is stable.

It is then printed, and may be dried without any fear of decomposition occuring, as is the case with Rongalite. The printed material is brought into a boiling solution containing 10 cc. of caustic soda (76 degrees Tw.) per litre for 10 to 15 seconds. By this treatment the printed portions are completely reduced. As in the usual hydrosulphite discharge process, the material is then passed through a second solution containing 5 cc. of water glass per litre, to remove the indigo white. The amount of hydrosulphite in the first bath accumulates rapidly, and hence the alkaline solution must be renewed frequently.

The advantages of this process are that it does not require the use of formaldehyde, discharge salt or anthraquinone, all costly materials; a smaller amount of hydrosulphite is required; moreover, the method is so simple that there is no fear of re-oxidation or overheating occurring, and the printed pieces are very durable. The paste keeps well, and is convenient for printing in spite of the large amounts necessary to obtain satisfactory whites. The material may be steamed, or discharge salt or anthraquinone added, but such treatment or additions are not essential.

The zinc hydrosulphite paste may also be used for fixing Indanthrene and Algol dyestuffs, which are mixed with the paste and the process carried out in the same manner as when using ferrous sulphate and stannous chloride, but the caustic soda solution need not be so concentrated. In this manner indigo may be discharged and replaced by Indanthrene or Algol dyestuffs.—*Chem. Zeitung.*

SOME CAUSES OF BLEACHING STAINS.

The causes of stains on bleached cotton goods are many. They may be divided into two classes, those made very distinct by sharply marked borders, and those, usually larger, which do not show up much before dyeing When the goods are to be boiled after weaving, it is of great importance to see that they are packed properly, so there are no open places, and the lye is forced to pass through every part. Stains may be caused by neglect of this precaution that are brown in color. If not too dark, they can be removed by chloring and boiling. It is obvious, however, that considerations of expense dictate that such stains must be prevented by proper packing. The caustic soda must be pumped warm on to the goods. If it is pumped cold, the parts of the fabric that it first touches are apt to be mercerized, and hence dyeing stains, or in other words, unlevel dying, cannot be avoided, as the mercerised parts dye darker than the unmercerized parts.

Rosin stains may occur from unsaponified rosin in rosin soaps. Here prevention is the only cure. These stains are very difficult to deal with, in fact, their removal at any reasonable cost and without damage to the fibre is practically impossible.

After boiling, the goods must be quickly rinsed in the kier with cold water to prevent them drying onto the hot metal whereby lime stains are caused.

Rust stains occur when the goods, still damp from the kier, come into contact with iron. If they still contain lye, the fibre may be tendered by conversion into oxycellulose, as well as stained. The kier must, therefore, be frequently painted inside with a mixture of milk of lime and egg-white. Rust stains can be removed with oxalic acid, but the goods must be very thoroughly rinsed after this treatment.

Acid stains are caused by imperfect rinsing after souring, especially if the goods are dried after the rinsing. they are irremediable if the fibre has been tendered, and in the case of cotton it nearly always is. Such stains, of course, never occur except through carelessness.

If goods which still contain free acid are soaped, the effect of the acid is neutralized, because the soaping comes quickly in the natural sequence of the operations, but another difficulty is introduced. The acid sets free fatty acids which, when the goods are rinsed with ordinary water, form lime soaps, and these act as a reserve in dyeing.

Defective rinsing after bleaching with bleaching powder and souring with sulphuric acid leaves sulphate of lime on the fibre, which causes white stains, and cannot be removed once the goods are dry.

Strong lyes of bleaching powder may cause tendering by the formation of oxycellulose. This substance may also be produced from the fibre by prolonged action of sunlight or even of the air on goods soaked with much weaker bleaching powder lyes. Oxycellulose may also be formed if air is present in the kier, and made very active by the high temperature prevailing. The parts of the fibre which are converted into oxycellulose are permanently tendered, and there is no cure. They, of course, cause unlevel dyeing by the difference in affinity for dyes between the changed and the unchanged parts of the fabric.—*Appretur Zeitung.*

COLORED DISCHARGES ON INDIGO.

The Diazo color was formerly added to a larger amount of glucose, and the material passed through hot, concentrated caustic soda for several minutes, a process which was not practicable. Sutean recommends a combination of the chromate and hydrosulphite processes. The Diazo printing colors from nitro-anisidine or naphthylamine are printed with 240 grams of barium chloride for each kilogram, steamed and treated in apparatus provided with four compartments. In the first bath the indigo white is removed by immersion for one minute in a boiling solution containing 15 grams of soda ash per litre, which also converts the barium chloride into the insoluble barium carbonate. The second bath contains 10 grams of bichromate per litre, and treatment for one minute at 50 degrees C converts the barium carbonate into chromate. In the third bath the material is carefully washed. The fourth bath contains 40 grams of oxalic acid and 40 grams of hydrchloric acid per litre, and a treatment lasting 35 seconds at 70 degrees C liberates chromic acid from the barium chromate, which discharges the indigo. The process requires great care, as the barium carbonate and chromate are not completely retained on the fibre, and is hence not very convenient. Indanthrene Blue GCD in admixture with Indanthrene Yellow GG and Indanthrene Golden Orange are used as follows:—

100 parts glycerine.
100 parts soda ash (Solvay soda).
320 parts British gum.
80 parts Hydrosulphite NF.
160 parts Hydrosulphite CCL.
280 parts zinc oxide (1:1 with water).
160 parts Indanthrene dyestuff paste (20 per cent.).—*Textile Colorist.*

Practical Problems Discussed by Cotton's Readers

We invite our readers to make use of this department for the discussion of any and all problems arising in the mill or the finishing plant. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this department unless so indorsed. This department is open to all. Suitable letters are paid for in cash.

ANSWERS TO SPINNING QUESTIONS.

EDITOR COTTON:

Referring to question by "Y. O. L." of South Carolina, as to what are the causes tending to make the roving wind around the middle steel roller on a spinning frame.

There is no doubt but that he has his rollers spread too wide apart. That is, the distance from bite to bite is excessive. I mean by the term from bite to bite, the distance from where the steel and leather middle rollers release the fiber to where it comes in contact with the steel and leather front rolls. The general rule for setting or spacing rolls on a spinning frame is to allow one-sixteenth of ar inch more space than the length of the staple of cotton. For example, if you are running a one inch cotton the rolls should be 1 1/16 inch from bite to bite, and if they are wider than this the result will be uneven yarn, thick and thin places, and laps on the middle steel roll.

Another cause is a soft spongy roving that has been stretched in the card room on the speeders or other fly frames, causing it to be weak and not draw well. Therefore it breaks and winds around the middle roller.

The lack of twist in roving will cause the same trouble, as it has not enough resistance to make it draw well, and consequently it breaks and winds onto the middle roll.

A good way to space rolls is to take a piece of paper, note paper preferably, cut a strip a half an inch wide and about two inches long. Break the end back on the frame and insert this between the leather and steel rolls, both front and middle; then resaddle the rolls and press on the lever with the thumb; this makes an impression on the paper and shows the exact location of the bite of each roller. By measuring this distance on the paper you have the exact distance from bite to bite. I have found, however, that where the middle roller is not weighted one can run very successfully with a closer setting than this rule allows.

Referring now to the question signed "Overseer" (North Carolina)" asking what makes roving stick to leather rolls on a spinning frame.

This is a very rare thing in a plain mill, but it happens often in a colored mill and more especially where the dyer is not onto his job or negligent. When cotton is once wet with the dyes it becomes sticky or gummy and if this gum is not thoroughly rinsed out and the cotton thoroughly dried before using it will be sticky and hard to handle at each process; it will not draw well; the gum in it gives it a heavy weight and makes it wiry in the spinning; causes it to stick to the roving bobbin, to lap around the leather rolls, and various other evils.

I have found that the dark shades are usually more troublesome than the lighter ones. Go to the opening room and examine some of the cotton there and if you find it sticky, report to the proper parties.

Student (Ala.)

EDITOR COTTON:

I will try and answer the questions of "Y. O. L." of South Carolina in reference to the roving wrapping around the middle rolls on a spinning frame.

First: It is sometimes caused by thick and thin places in the roving, or cut roving.

Second: Perhaps the rolls may be spread too far apart for the length of stock.

Third: See that the middle steel rolls are clear of burrs.

Fourth: See that the top rolls are clear of "chokes" at the ends,

In reply to "Overseer" North Carolina, in reference to roving sticking to his top rolls on the spinning frame, I have always noticed that the roving sticks to the leather rolls worse in damp weather than in dry. Keep the windows closed on damp days. Also try to keep as even a temperature as possible. Watch the regulators on the humidifiers and keep the temperature about 75 degrees dry and 65 degrees wet.

I don't see any good reason why cotton should stick worse after being dyed if the dyeing and drying are properly done. Be certain that there is no oil on the leather rolls.

Former Carolinian (Ala.)

QUESTIONS ON SLASHER BLANKETS.

EDITOR COTTON:

I am particularly interested in the question of slasher blankets and would be glad to see this question discussed in this department of your paper by the practical men who read and contribute to it.

(1) What is the best blanket? I do not mean to present the trade name of a certain make of blanket as I know this would be impossible in your reading columns, but what I mean by the best blanket is an all wool blanket or a wool and cotton blanket, etc.

(2) How many yards of this blanket should be used to cover a roll?

(3) Assuming a wool or a wool and cotton blanket is used, is there any advantage or disadvantage in putting a piece of cotton sheeting over this blanket as another covering?

(4) If the use of cotton sheeting on such a roll is advantageous, what kind or construction is best and how many yards should be used?

(5) If such cotton sheeting is used as an outer covering, should it be applied on the finisher roll or the first roll, or both?

Superintendent (S. C.)

An individual can accomplish results only to the limit of his personal strength and ability. A group of individuals can do much more. Read page 247 and act at once. You are but an individual.

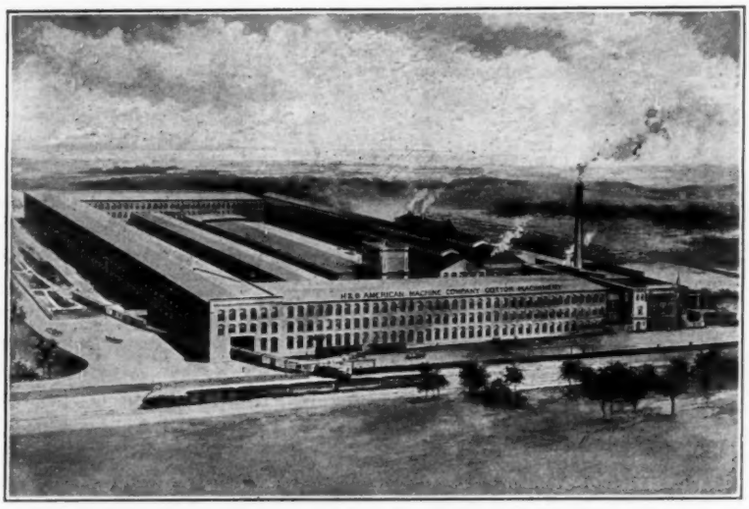
C. E. RILEY, Pres.
Boston Office
65 Franklin Street

Southern Offices
814-815 Empire Bldg.,
Atlanta, Ga.

COTTON MACHINERY

Opening and Picking Machinery

Card Room Machinery



Spinning Room Machinery

Twisters for Wet or Dry Work

With Band or Tape Drive

H. & B. AMERICAN MACHINE COMPANY
PAWTUCKET, R. I.

ABOUT THE ROLLING STONE.

EDITOR COTTON:

"Does it hurt an overseer to change?"

If asked the question, I would say decidedly, yes. Moving is a costly piece of business to any man, not only from a pecuniary standpoint, but it hurts his reputation. Personally, I never could see it that way, yet, unfortunately, others do, and but few mills wish to employ an overseer who has a long list of changes on his record, even for good and sufficient reasons. But the most direct harm to an overseer who changes is the mental perturbation that is bound to result. In time he gets to the state where no place suits him, and this, perhaps, more than any other one thing, gives rise to the discredit of a moving overseer among mill managers.

Another concurrent evil is his gradually lessening confidence in his fellow-man in general. It is a strange fact, but the evil in men shows much more readily than the good, and a new overseer coming into a new community nearly always sees it at its worst. Even the men for whom he is to work are very likely to show their eccentricities and little petty faults before their virtues. The tough ones among his operatives will certainly come to the top for his inspection first, while the good ones will most likely remain in the background.

Not only in the mill is this true, but in the community as well. At best an overseer sees and knows enough of the evil in life to pervert him and make him sour and changing will increase this tendency. A man living in one community for a long time gradually becomes familiar with the conditions and has his mind better balanced by learning of and appreciating the many good features to be found and enjoyed.

I am convinced, however, that there is no evil without some attendant good. So, then, where is the good in this case? For one thing, the overseer gains in experience. By one change a wide-awake man may gain more practical experience than in several years of hard study and hard work on one job. Overseers are paid for their knowledge, the broader the knowledge the better bargain the mill gets. Not only does the overseer get new ideas as to mill management, but he also has a chance to broaden his horizon of thought and by coming in contact with and studying so many people, he should, and usually does, become more liberal minded. The contact with the world at many places has done more to balance some men's minds than a course in college would have done, and it is the balanced, mature thought of wisdom born of experience in the technically trained mind that in the end will count in the mill, as elsewhere in business life.

An Overseer (Georgia).

MAKING HOSIERY YARNS.

EDITOR COTTON:

Which is better in the making of hosiery yarns, the use of two or three processes of drawing?

If two processes, why?

If three processes, why?

I shall be glad to have the contributors to the Practical Discussion Department express their opinions on this most interesting subject.

Questioner (Alabama)

TIMING ON THE COMBER.

EDITOR COTTON:

The object of a comber is to remove impurities such as sand, leaves, seeds, dirt, warts or knits, burs, short or undesirable fibers and foreign matter of any kind from cotton and other fibrous materials. It also lays the fibers parallel with each other.

All timings and settings must harmonize with one another and all set at certain times from the timing or index gear. There are problems left unsolved and defects continually existing owing to the inability to trace the object, performance and result that each part holds to each other part. It is with the hope of rendering some assistance that this letter has been prepared.

In carrying out the process of cotton combing a sheet of fibers called the lap is held by or between two feed rolls, both being fluted in most cases. The advantage of this being a stronger or better grip on the fibers as they are held between the flutes of two rolls, and the feeding being an intermittent operation, it would be rather difficult to get good results with anything except two flutes in mesh. After passing these rolls the sheet of fibers is held by the nippers or jaws which opened to allow the sheet to be fed or propelled through for the distance desired, after which they are closed again to hold the sheet. The cotton next comes under the action or treatment of the cylinder needles, called the half lap, which is brought or moved under the jaws of the nippers and being in close proximity to these, allows them to take impurities from the sheet, which are later cared for by suitable receiving machinery.

The ends of the fibers which lead or project from the nippers first, will hereinafter for convenience be termed heads of the fibers, whereas the opposite end or those that leave the nipper last will be termed the tail of the fibers.

While the heads are being treated an important factor to be looked after is the time of nipping tight, for if we nip too late the needles will have taken quite a little good or long cotton, as in order to treat or act upon the fibers they must be held tight or they will be carried away; while if we nip too early, the fibers or heads of the fibers will have had time and a tendency to drop or hang down and when the first row of needles strike or hit the sheet, it will be knocked up out of the path of the needles and a few rows of needles will be allowed to pass, doing no work before the sheet of fibers drops back or down into the path of the needles again. Of course judgement must be used for different settings, by that I mean for wide settings we should nip earlier and close settings nip later, as the wider the setting the earlier the first row of needles come under it. The heavier the lap the more liable to happen is this evil of knocking up the lap.

After the heads of the fibers have been treated as described the part of the cylinder called the segment comes under the newly combed fibers raising them from their hanging position and, being graduated, avoids the trouble sometimes had with incorrect nipper timing, which knocked the fibers up, and also does away with the evil that the old non-graduated segment had of striking the leather detaching roll too hard or all at once.

The heads of the newly combed fibers now lying on the segment will be raised up as the higher part of the segment comes around and will be gripped by or between the segment and the leather detaching roll, which rotates at a sufficient rate of speed to take a firm hold so that now the sheet of fibers is held by both the feeding and receiving motions. If it is not desired to break the fibers, thereby reducing the length of the individual fibers the distance from the bite of the feeding rolls, and the segment and leather detaching roll, or receiving roll, should be greater than the length of the fibers being treated. In this case by having the bite of the feeding rolls, and receiving roll and segment greater than the length of the staple, the sheet of fibers is held together by the cohesion of the fibers and the individual fibers are not broken by the next operation.

In the next operation the leather detaching roll, through being in contact and partially lying on the steel detaching roll and on the detaching roll blocks, is started to move forward through friction as the steel detaching roll moves forward away from the nippers and feeding roll and in the direction of the heads of the fibers so as to disconnect, or partially disconnect, the fibers which are held by the leather detaching roll and segment from the fibers which are held by the feeding rolls, severing or parting the sheet of fibers between the leather detaching roll and segment, and feeding rolls but not breaking the individual fibers.

The tails of those fibers whose heads have been already treated, and which are now being held by the steel and leather detaching rolls, are at the desired time carried back, but in a lesser degree than at the forward motion, in order to bring the tails of the previously combed fibers backward so as to be pieced or intertwined to the heads of the newly combed fibers, forming a continuous web out of a sheet of cotton that is severed or broken in most cases about 155 times a minute, although the writer has seen high speed combers for a short period of time speeded up to 164 revolutions or nips per minute.

In operation the pawl arm nose drops over into the ratchet wheel, causing it, and consequently the detaching roll, to turn backward, but in a lesser degree than the forward movement. The timing of the different parts of the comber is about as follows:

At 1¾ the nippers start to open.

At 3½ the backward motion of the detaching roll stops and hesitates until 6⅜.

At 4¾ the nippers are open and hesitate until 8.

At 4¾ the rolls start feeding.

At 6⅜ the detaching roll starts forward.

At 6⅜ the segment touches or strikes the leather detaching roll.

At 8 the nippers start to close.

At 9¼ the segment leaves or passes from under the leather detaching roll.

At 10½ the nippers are closed fairly tight.

At 11¼ the forward movement of the detaching roll stops and hesitates until 1.

At 11¾ the nippers close tight enough to hold the fibers secure.

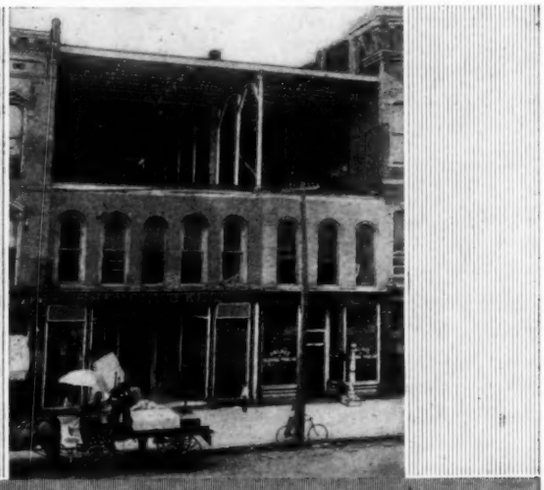
At 11¾ the first row of needles comes under the nipper jaws. And, roughly speaking, advance one row of needles per tooth until 19, when the last row comes under the nippers.

From 19 to 1 the pawl arm and nose are getting into position ready to drop into the ratchet wheel again, forming one complete revolution, or cycle of operations, technically known as one nip, which is found by counting the number of times the nipper knife comes down on the plate, or from the following rule:

Multiply the revoultions per minute of the driving pulley

42 Years of Service

—the story of a small roof with a great record



Barrett Specification Roofs

Sherfey & Kidd Furnitur Store, Brazil, Ind.
Roofer: Henry C. Smither Roofing & Sheet Metal Co. Indianapolis, Ind.
Sims & Smither, 42 years ago.

The photograph above shows a building in Brazil, Indiana, which was roofed in 1872 with felt and gravel along the lines of *The Barrett Specification.*

A few months ago, it was necessary to add another story to the building and the old roof was torn off.

During 42 years the roof never leaked, nor was it patched, painted or repaired.

The owners wrote to the successors of Sims & Smither, who put on the original roof in 1872, saying: "*We want a roof like the old one*'—and a Barrett Specification Roof, therefore, now covers the new addition.

From the viewpoints of service and economy, Barrett Specification Roofs are preeminently superior to any other kind.

HYDRONON

The damp-proofing Paint

A permanent damp-proofing paint which can be applied on the interior of brick, stone or concrete walls above the ground level, to exclude dampness. It penetrates into the pores of the concrete or brick and seals the surface. It cannot peel off or be knocked off. By excluding the dampness of the wall, it makes it possible to apply the plaster directly over the Hydronon without the use of lath and air space, thus saving considerable expense in construction. Not affected by alkali in the concrete. Booklet will be mailed free on request.

Special Note We advise incorporating in plans the full wording of The Barrett Specification, in order to avoid any misunderstanding. If any abbreviated form is desired, however, the following is suggested:
ROOFING—Shall be a Barrett Specification Roof laid as directed in printed Specification, revised August 15, 1911, using the materials specified and subject to the inspection requirement.

A copy of The Barrett Specification, with roofing diagrams, free on request.

BARRETT MANUFACTURING COMPANY

New York Chicago Philadelphia Boston St. Louis Cleveland Cincinnati
Pittsburgh Detroit Birmingham Kansas City Minneapolis Salt Lake City Seattle
The Paterson Mfg. Co., Limited: Montreal Toronto Winnipeg Vancouver
St. John, N. B. Halifax, N. S. Sydney, N.S.

TRADE B MARK

by the number of teeth in the driving gear, and divide by the number of teeth in the driven gear.

Example: What is the number of nips per minute on a single nip comber, with the driving shaft going 355 r.p.m. and with a 30-tooth gear on the driving shaft to an 80 tooth gear on the cylinder shaft?

$355 \times 30 \div 80 = 133$ nips per minute.

L. C. (Rhode Island.)

CLEANING AND OILING COMBERS.

EDITOR COTTON:

Here are a few rules which may help the comber foreman to secure a larger production.

Commencing Monday and Wednesday mornings of each week, all comber-tenders should carefully oil their machines under the personal supervision of the man in charge, who should make it a point to do nothing but pass back and forth among the combers and see that the tenders do not put too much oil on the machines, but that they do oil every place requiring it. An unnecessary amount of oil makes the machine dirty and causes it to run badly, while not enough will cause the parts to wear out and the machine to break down.

Comber-tenders should clean their combers with the finger brush around the rolls at say 8:00 A. M. and 2:00 P. M., or else by taking a piece of round stick, much like a pencil without the lead, and turning it around a few times between the fingers, this leaves the rolls much cleaner than the brush, as the tip of the stick is moistened, thus making it easy for the cotton to adhere to it.

The backs and fronts of the machines should be cleaned and wiped of all lint just before sweeping the floor so that all will be clean at noon and night of each day.

Comber tenders should clean the top-combs at 8:00 A. M. and 11:00 A. M.; 2:00 P. M. and 5:00 P. M. of each day

Every morning the comber-tenders should polish with whiting the tables, coiler-tops and draw-box covers.

Comber-tenders should not let tail ends of laps pass through the combers, but they frequently do, and one point that the writer wishes to make clear is that it is a poor practice to have all the laps on a comber come out together as it makes that piece of sliver uneven. The writer might add that if the tail ends of the laps slip through the rolls, they will break some of the needles of the top-comb.

If a comber-tender finds anything out of order with the machinery, they should immediately report it to the boss-comber. Wednesday of each week at 1:00 P. M., comber-tenders should clean thoroughly the draw-box, replacing the top-rolls with others newly varnished, this is a rule that some boss-combers would laugh at, but newly varnished rolls keep the sliver running nice and even through the draw-box.

These rules should be enforced by the man in charge of the combers, and if complied with, the results will be much better, but before closing my letter, I wish to bring to the attention of the readers of COTTON that the machines, while cleaning is underway, should be stopped. The reason I emphasize this fact is that I have seen many comber-tenders clean their machines while in motion.

I also wish to point out to the readers of this department that on a comber with eight deliveries or heads there are many times when the sliver is uneven.

For instance, the comber might have the stop motion out of order or in poor condition, so that when the sliver of one head breaks the machine keeps on running. It certainly is only having seven slivers going through the draw-box into the can instead of eight, thus the result is an uneven piece of sliver. But even if this does happen, a good comber-tender, one that knows his duty, also one with common sense, will just simply take a few yards of the sliver that is in the can and break off what he or she thinks is the uneven piece and mend or piece-up the sliver, thus insuring even work, or as near to even work as posible.

Tab. (Mass.)

WISHES INCREASED LOOM PRODUCTION.

EDITOR COTTON:

I read with great interest letters from practical men in the Discussion Department of COTTON, but one point in which I am particularly interested is not receiving what I believe to be the attention it deserves.

I shall be glad to read the experiences of superintendents, or overseers of weaving stating how they have accomplished an increase in loom production and the percentage of increases with each change as made.

I am aware that I may be asking for information that a few years ago would have been considered a trade secret, but in these days of efficiency systems and "Mothers' meetings," trade secrets, from a standpoint of operating methods, have practically disappeared and I feel sure that the man who has really accomplished something will be glad to disseminate this information for the good of the industry. The carders, the combers, the spinners and the dressing room overseers are doing this, and together with the superintendents, are adding information from their stock of knowledge along all of these lines. Why not also include the weaving branch?

Inquirer, (Rhode Island)

A QUESTION OF ETHICS.

EDITOR COTTON:

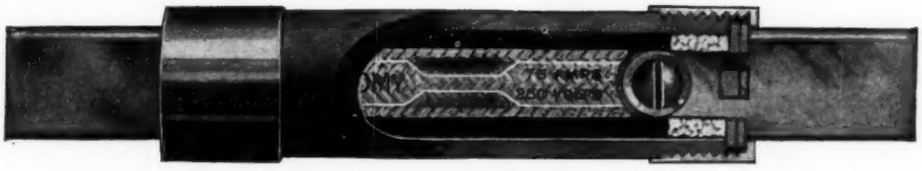
As I have previously stated, your uncle "Wash" has visited many mills and is still at it. In making my rounds at Christmas time, I found many overseers receiving presents from agents of the different supply houses. My advice to all overseers who receive presents is to accept everything that comes their way, but at the same time not to forget to protect the company's interest. I hate to think any man in charge of a mill or department would be affected in discharging his duty through receiving a box of smokes, etc., but he should be careful.

I remember when I was in charge of a cotton mill where we contemplated replacing the old fly-frames, the salesman of a shop building fly-frames invited me to a hotel and gave me one of the best times in my life, but as I was opposed to his type of fly-frame, the frames were bought from another company.

It is often a case of too much wish-bone and not enough back-bone. In such cases have the strength to say *No.*

Wash, (Mass.)

Albert Greene Duncan made an earnest plea for greater cooperation among cotton manufacturers while at the Memphis convention. Turn to page 247 and read about it.



Sectional View—Knife Blade Type Fuse.

Why Spend Four Times More Than Necessary For Annual Fuse Maintenance?

A saving of 80 per cent. per year in fuse maintenance expense is being effected in industrial plants, central stations, mines, department stores, steam and electric roads—in short, wherever

"Economy"
Renewable Cartridge Fuses

are used. Twenty-five blowouts of the ordinary non-refillable fuse cost $10.12\frac{1}{2}$—where 25 blowouts of an Economy Renewable Cartridge Fuse costs $2.10—and Economy renewable cartridge fuses provide positive electrical protection under all conditions. They neither vent fire nor hold a sustained arc—they are absolutely safe.

Are you spending four times more than necessary for annual maintenance?

Two Economy Renewal Elements are now furnished with each Economy Fuse.

Write today for catalog No. 7 and list of prominent satisfied users.

ECONOMY FUSE & MFG. COMPANY

Kinzie and Orleans St., Chicago, Ill.

Notes About Men You Know.

BEN S. PIPER, a former Georgia boy and now overseer of weaving at the Empire Cotton Mills at Welland, Canada, advises that business is good and he is still on the job.

W. W. MOORE, formerly president of the Wymojo Mills, of Rock Hill, S. C., will succeed F. L. Chapman as superintendent of the Riverside Mills at Danville, Va. Mr. Chapman, who is one of the older and more successful men in the industry, came South in 1899 as overseer of spinning at the Riverside Mills, which was then a small plant and has been with the company durings its growth until the combined plants of the Riverside and Dan River Division now have 337,000 spindles.

THOMAS MASON, overseer of spinning in the Lyman Mills, Holyoke, Mass., retired recently after 47 years of service.

B. L. DOBY, overseer of spinning at the Dresden Mills, Lumberton, N. C., has been transferred to the position of assistant superintendant of the Jennings Mill, of the same place.

C. E. HUTCHINSON, president of the Nims, Woodlawn and Armon Manufacturing Companies, Mt. Holly, N. C., has also been elected president and treasurer of the Wymojo Yarn Mill, Rock Hill, S. C.

CHARLIE HIGGINS, an old Rhode Island boy and formerly connected with the Greenwich Bleachery at East Greenwich, R. I., is now in charge of the finishing department of the American Finishing Co., Memphis, Tenn.

E. L. WHITAKER, assistant manager at the American Finishing Co., Memphis, Tenn., was one of the most genial entertainers at the Memphis Convention.

J. E. FIELD has resigned as overseer of carding at the Highland City Mill, Talladega, Ala., and accepted a similar position at the Anniston (Ala.) Mfg. Co.

FRED CUNNEEN, formerly of Taunton, is now agent of the Danielson Cotton Co., Danielson Conn.

C. L. CHANDLER has resigned as overseer of weaving at the Loray Mill, Gastonia, N. C., and accepted a similar position at the Olympia Mill, Columbia, S. C.

GEORGE A. HAYES, appointed to succeed his father, Joseph A. Hayes, as foreman of bleaching, dyeing and finishing at the Phenix Lace Mill, Phenix, R. I., assumed charge last month.

THOMAS BICKERSTAFFE, who for the past four years has been overseer of the cloth room of the Quidnick-Windham Manufacturing Co., Willimantic Conn., resigned that position to take a similar position with the Chicopee Manufacturing Co., Chicopee Falls, Mass.

PAUL NICHOLS has accepted the position of overseer of carding at the Indian Head Mills, Cordova, Ala.

J. V. JONES of Greenville, S. C., has accepted the position of overseer of spinning at the Apalache Mills, Arlington, S. C.

H. J. BURNAP has resigned as superintendent of the Dwight Mfg. Co., of Alabama City, Ala., and will return to his former position as master mechanic at that mill.

DELMONT E. NASON, overseer of weaving at Blackstone Cotton Mill, Blackstone, Mass., has resigned and has purchased a home at Skowhegan. Me., to which place he will move shortly. He will be succeeded by Theodore P. Wadsworth, formerly overseer of weaving at the Linwood Mill, Whitinsville, Mass.

CHARLES ABBOTT has accepted the position of assistant secretary of the Avondale Mills, Birmingham, Ala.

T. H. HENDERSON has resigned as superintendent of the Lynchburg Cotton Mills, Lynchburg, Va.

J. A. LONG, president of the Roxboro Cotton Mills, Roxboro, died at his home in that city recently.

J. H. DILLS, superintendent of the Nick-a-Jack Hosiery Mills, Chattanooga, Tenn., is temporarily acting as manager.

J. J. HORD has been promoted from second hand to overseer of weaving at the Loray Mill, Gastonia, N. C.

J. D. LONER has been promoted from overseer of spinning to superintendent of the Dwight Mfg. Co., Alabama City, Ala.

H. V. MARTIN has resigned as superintendent of the Cutler Mills, Warren, R. I. Mr. Martin's place has been filled by Rufus Walker, one of the owners of the Cutler Mills.

FRED A. CUMNOCK, formerly superintendent of the Whitney (S. C.) Mills, the Humboldt (Tenn.) Cotton Mills and since last August superintendent of the Pioneer Cotton Mills of Guthrie, Okla., died at the latter place and was buried at Spartanburg, S. C.

JOSEPH FLEMING has severed his connection with the Bigelow-Hartford Corporation, Lowell, Mass., to take up the duties of general superintendent of dyeing in one of the largest carpet concerns in the country, the Stephens, Sanford & Sons Co., of Amsterdam, N. Y.

R. P. SWEENEY has resigned as superintendent of the Fairmount Mfg. Co., Fairmount, S. C., to accept a similar position at the Social Circle (Ga.) Mills.

W. H. SHEPHERD has resigned his position with the Bradford Knitting Mills, Statesville, N. C., to become superintendent of a knitting mill at Newcastle, Pa.

G. GAGNON, overseer in the ring spinning department of the Pocassett Manufacturing Co., Fall River, Mass., has resigned that connection to accept a like position with the Lyman Mills at Holyoke, Mass.

R. P. CLARK, formerly assistant superintendent of the Majestic Mfg. Co., Belmont, N. C., has accepted a similar position at the Louisville (Ky.) Cotton Mills.

ROBERT H. SMITHERS, formerly superintendent of the Lymansville Co., Lymansville, R. I., has been appointed general manager of the Danielson Cotton Co., and has been succeeded by John Heffernan, formerly with the Smithfield Worsted Mills.

E. B. ELLENBURG resigned as second hand in No. 2 weave room at Pelzer, S. C., to become overseer of weaving at the Conestee Mills, Reedy River, S. C.

CHARLES P. DOANE, superintendent of the Chales Kent Manufacturing Co., Clifton Heights, near Philadelphia, has been selected as superintendent of the South Village mill of the S. Slater & Sons, Inc., Webster, Mass. He succeeds Henry E. Kirk, who resigned recently to accept a position in Providence.

Spinning Tape Specialists

Established 1898

Makers of tape for all kinds of tape drives and all makes of machinery. Makers of listings, leaders and all kinds of mill tapes

Write Us

BARBER MANUFACTURING CO.

LOWELL, MASS.

are adapted to any style or size of building from workmen's cottages to the finest residences. They are easily and quickly laid, right over wooden shingles if desired.

Let us send you the names of nearby users of Cortright Metal Shingles. No obligation. Write today.

CORTRIGHT METAL ROOFING COMPANY
Philadelphia and Chicago.

JOHN D. LEWIS

Manufacturer of

Logwood Extracts & Hematine

Providence, R. I.

50% Better than ever from YOUR Standpoint

SEVERAL NEW FEATURES have been added to the "1912" Cloth Cutting, Folding and Winding Machine which **add at least 50% to its value to YOU.**

It will cut your cloth—fold the edges—roll it up and give you an exact measurement of every piece of cloth going through the machine.

It saves time, labor, machines and cloth.

YOU ONLY NEED ONE MACHINE where before it required two, and you get an **extra** strip from every bolt of cloth.

It cuts the corners of expense in every way and leads to more and greater profits.

THE ENORMOUS SAVINGS WILL INTEREST YOU.

Mail a card for complete information and prices.

When in need of special machinery, write me.

J. A. FIRSCHING, 614 Broad St., Utica, N. Y., U. S. A., Dept. "C."

Clinton H. Scovell & Company

Certified Public Accountants
Industrial Engineers

110 State St. CHS&C CERTIFIED PUBLIC ACCOUNTANTS MASS AND NEW YORK **Boston, Mass.**

Textile Cost Accounting

WANTED EVERY MILL in the SOUTH to use **Removoil, Loom Lubrik, Myco Non Fluid Oil and Loom Grease, Disinfectants, Myco Grease Size.**

MASURY-YOUNG CO., Est. 1857 Boston, Mass.

DIXIE SPINDLE & FLYER CO., Inc.

Expert Overhaulers and Repairers

COTTON MILL MACHINERY

CHARLOTTE, N. C.

ALUMINA SOAPALITE
THE MINERAL SOAP

THE DETERGENT WITHOUT AN EQUAL

Washes thoroughly and quickly—rinses freely. Brightens and sets colors.

BOOKLET FREE

THE ELECTRIC SMELTING & ALUMINUM CO.

Lockport, New York

New Machinery and Trade Notes.

Service vs Price Cutting.

Narrow fabrics either in the form of tapes or strips cut from a wider web, are used for a variety of purposes. In the production of many classes of narrow goods, it is found to be much more economical to cut a broad web into strips of the width required, rather than to use tape or ribbon with selvage edges. The value of this substitution of cut strip for woven tape will depend largely on the character of the strip and how near it approaches the qualities of tape in neatness, convenience of handling and other features. Tape has a clean edge and strip is apt to be frayed. Tape is uniform in width and strip sometimes varies. The former has greater strength and so forth, but when it comes to cost, the tape is out of the running.

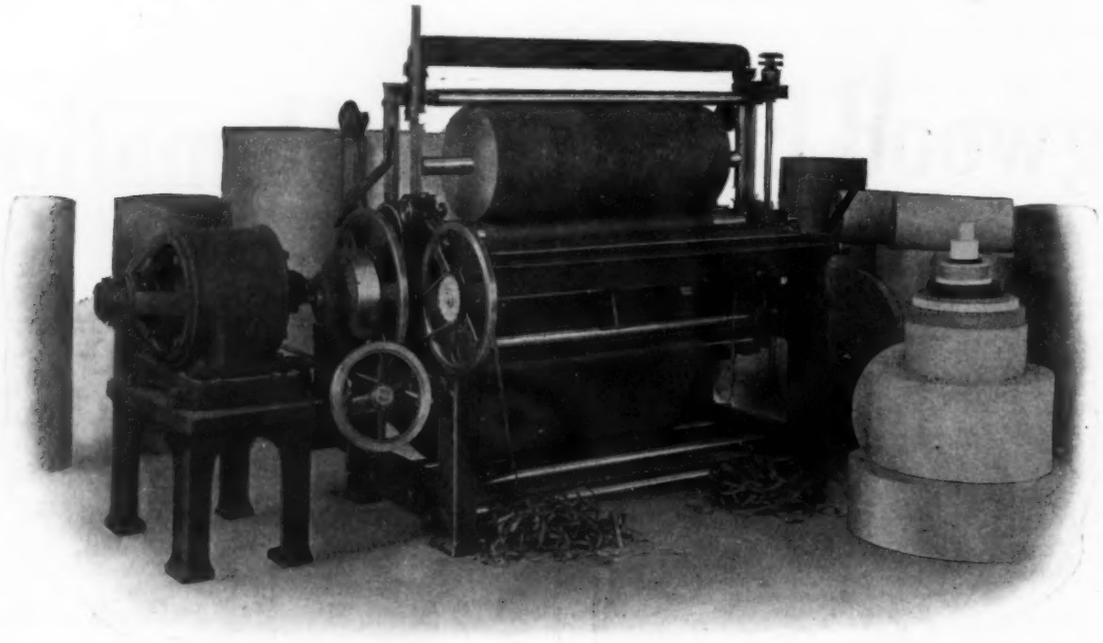
The main thing is to ascertain if strip can be obtained by any process which will tend to lessen its objections and approach to the qualities of woven tape or ribbon.

Aside from its use as a substitute of ribbon, cut strip has a wide application of its own where ribbon would not only be impracticable on account of cost, but actually undesirable. Such, for instance, as surgeons' bandages, where the selvage would be too harsh, motor tires, where the selvage would chafe the rubber, insulating materials for electrical apparatus, including wire and cable, where the cost would be prohibitive, typewriter ribbons, where a woven strip fails to lie flat, and enough other uses to fill up a page.

An enormous yardage of textile goods is consumed in this way and only the larger individual users of cloth strip are now equipped to produce it under favorable conditions.

It will pay the textile manufacturer to equip to deliver goods in the form of stripping as well as piece form, which service although inexpensive to the producer, is highly valuable to the average purchaser. Such a strip cutting machine will produce upwards of ten thousand yards of cloth per day into strip of any width required, coiled into firm, even coils at one operation, and by one operator. To sum up in a few words:—Give the customer stripping rather than piece goods, where his needs call for stripping, charge him handsomely for the extra service, and he will pay cheerfully.

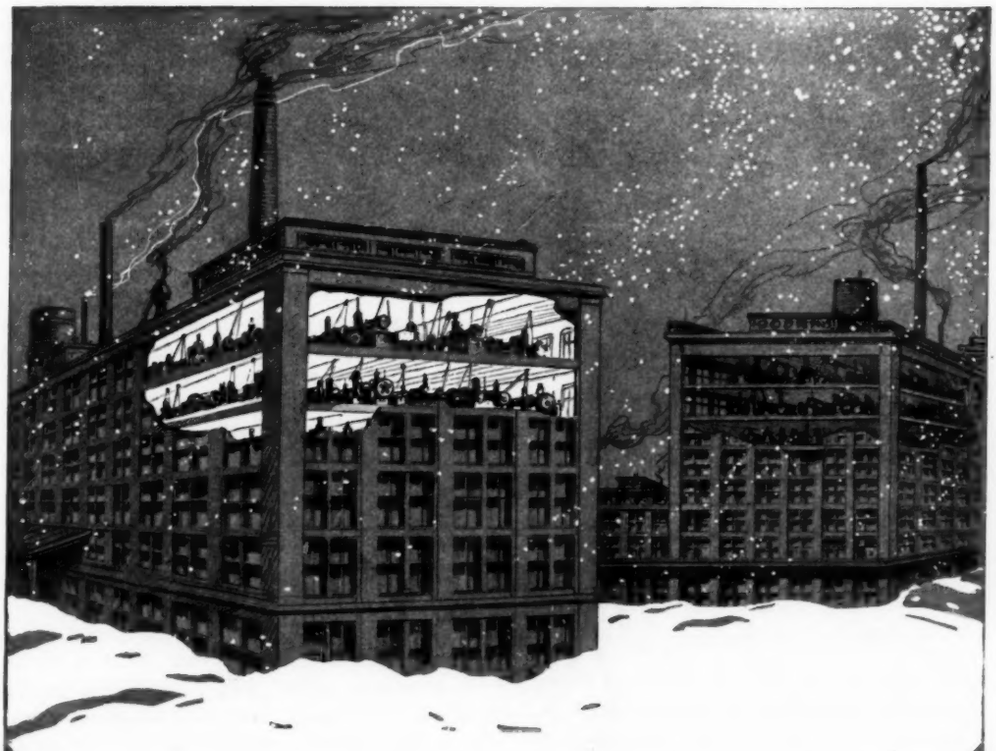
To be in a position to deliver this service the following requisitions of a practical machine should be kept in mind:



CAMERON SLITTING AND REWINDING MACHINE.

1. It should be able to cut wide material of any width or combination of widths required;
2. It should be adjustable quickly and accurately for a change of widths;
3. It should make as many cuts at one time as required rather than one by one.
4. The strips should be automatically rolled into compact coils as cut.
5. The edges should be cleanly cut.
6. Waste should be eliminated.
7. The cutters should be indestructible.
8. The same machine should be able to operate on any kind of fabric.

In the machine we illustrate herewith, a determined effort has been made to realize all these important features.



WHITE AS SNOW

Chaffee's Mill White

A Sparkling, Light-diffusing Paint for the Factory Interior.

Contrast the glistening, snow-white walls and ceilings of the Factory where **Chaffee's Mill White** has been applied, with the dirty, oil-stained, light-absorbing interior of its near-by neighbor.

Chaffee's Mill White reflects **all** the light rays into every nook and corner, prolongs the daylight hours; and materially reduces bills for artificial lighting. It dispels gloom, makes sanitary surroundings, and insures increased precision, accuracy, and better workmanship from employees.

This paint gives a permanent white, enamel-like surface which sheds dirt and saves frequent repainting costs because it can be easily cleaned again and again. It is elastic, and will not chip or scale off, even under heavy vibrations. No other paint can equal it in endurance—none other is lower in ultimate cost.

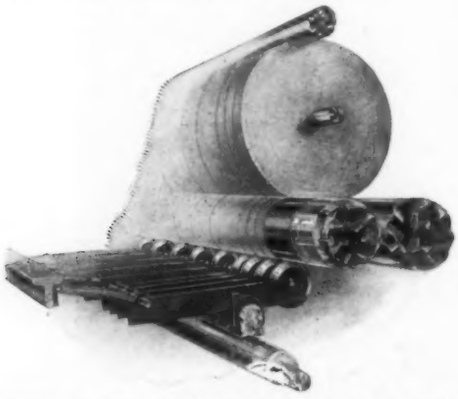
LET US HELP SOLVE YOUR LIGHTING PROBLEM.

Wouldn't it pay you right now to investigate the merits of this sparkling, shadow-chasing white paint, which has proven its efficiency in hundreds of the largest mills? What we have done for others we can do for you.

Write TODAY for Descriptive Booklet and Paint Panel.

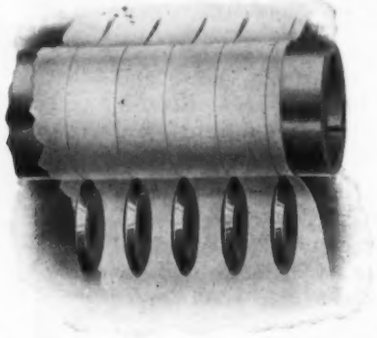
THOMAS K. CHAFFEE CO. . . . PROVIDENCE, R. I.

It consists in the use of a "cleaving" or "scoring wheel" which actually presses through the material rather than cuts through it. The scoring wheel is a circular disc having a V-shaped edge slightly blunt and mounted on a ball-bearing center and pressed with a spring pressure against a hardened steel cylinder having a highly polished surface. To meet the enormous demand for surgeons' bandages, it was only a step further to make this style of slitter wheel with a zig-zag edge so that the strip produced would have a scallopped edge, and this one step led to the Cameron process of producing surgeons' bandages. The edges of bandage strips made in this way do not fray and further attention after cutting has been obviated.



SLITTERS SHOWN IN COMBINATION WITH SURFACE REWINDING METHOD.

The fabric is cut while passing between the slitter wheels and the hard steel cylinder against which the slitter revolves, and the factor of speed has nothing to do with the character of the work. The slitters themselves are made of high-speed steel, and the cylinder against which the slitters act is *preferably* made up of several tubular steel sections mounted on a core shaft, for by this means more even hardness can be obtained. The ends of the sections are accurately ground, so that the joints between them need not be considered in placing the cutters for a change



SKETCH SHOWING CAMERON PRINCIPLE OF SLITTING.

of width.

The rewinding apparatus is of the type known as the "drum" or "surface rewind." It consists of a pair of supporting rollers of which the cutter roller is one, together with the riding roller which presses upon the upper surface of the coils and holds them in uniform contact with the supporting rollers, and by revolving at a higher rate of speed insures that the rolls are wound firmly and compactly. It will therefore be understood that as the fabric passes between the cutter roller and the slitter wheels it will be severed into strips of the desired widths, and these strips go forward side by side to be re-wound on the rewinding shaft or mandril without any possibility of one strip overlapping the edge of another.

This machine is manufactured by the CAMERON MACHINE CO., 57-61 Poplar street, Brooklyn, N. Y. Complete details can be had on application.

The SARCO ENGINEERING COMPANY of New York announce that their sales of Sarco steam traps, Sarco vacuum valves, and Sarco temperature regulators have shown substantial and continued increases during the past half year, despite the influence of the European war and the company moved its offices to the new South Ferry Building, No. 1 State Street, New York, last March in order to better handle its increasing business.

A decree in the Anti-run-back case of Scott & Williams, Inc., covered by Patent No. 976,555, dated November 22, 1910, against John Blood & Company, Philadelphia, has been entered, awarding an injunction, sustaining the validity of the patent and its infringement by John Blood & Company, who have taken out a license under the patent. This patent covers stockings in which an "anti-run-back" course is knitted in to stop the running of stitches due to garter tears or from other causes. Scott & Williams Models G, F and O machines produce stockings having this feature.

L. F. Hamilton, in charge of the advertising and specialty department of the NATIONAL TUBE COMPANY, has returned from an extended business trip to the Pacific Coast in connection with the exhibit at the Panama-Pacific Exposition. The National Tube Company exhibit is part of the U. S. Steel Corporation exhibit which is located in the Mines and Metallurgy Building and occupies 44,000 square feet—the largest single exhibit at the exposition.

The C. W. HUNT CO., INC., owing to their increasing business, on April 12th moved their New York office from 45 Broadway, where they have been for twenty-eight years, to the new building of the Adams Express Co., 61 Broadway. They will occupy a suite of offices on the 11th floor, which will give them much better facilities for transacting their business. The company are large manufacturers of coal handling machinery, conveying machinery and small motor trucks.

The G. M. PARKS COMPANY, Fitchburg, Mass., have just recently closed a contract with the West Boylston Mfg. Co., at East Hampton, Mass., for 275 heads of the well known "Turbo-Humidifier," manufactured by this company, which is also being installed in the spinning department of the new Naumkeag Steam Cotton Mills at Salem, Mass., which is replacing the mill recently destroyed by fire in the great Salem conflagration.

THE SHAMBOW SHUTTLE COMPANY of Woonsocket, R. I., makers of the Shambow patented hand threading shuttles, are building a two-story addition to their present factory building and have installed several improved machines to accommodate the increase in their business. Over-time work was necessary during a large part of February and March and this extra work, as well as the large increase in orders, led to the decision to build this addition.

FOR SALE---RARE BARGAIN

Cotton Mill

We have a COTTON MILL, appraised by reliable appraisement company at $186,000.00—24 acres suburbs, Humboldt, Tenn.,—About 50 tenement houses, gin, warehouses, etc. 8,500 spindles, 250 looms, about $6,000.00 new repairs on hand.

Will sell for $125,000.00—Old management will take $25,000.00 stock, $25,000.00 cash, balance of $75,000.00, $10,000.00 per year, 6%

Cotton, sufficient to run, can be bought locally at $5.00 under Memphis market.

Reason for selling, none of us understand Mill business.

Humboldt Cotton Mills, Humboldt, Tenn.
or J. W. Pumphrey, Memphis, Tenn.

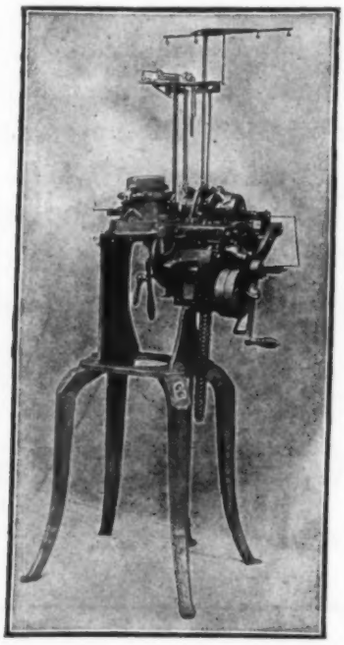
Good Weavers Favor
Loom Production
Shambow Shuttles Are Good Weavers.

To Weave Better Cloth and More of it Per Loom, and at less Cost for Supplies, get in touch with

Shambow Shuttle Company
Designers of Efficiency Shuttles
Woonsocket R. I.

A New Automatic Knitting Machine.

The Boss full automatic machine is a high speed knitter, making from 260 to 280 revolutions per minute. This machine is built very compact and strong, to stand all factory strain, and is claimed to be the simplest, machine on the market and the easiest to keep in repair. One fixer, it is said, can care for 100 machines. All parts are interchangeable. It has a simple and most perfect automatic



THE BOSS FULL AUTOMATIC KNITTER.

splicer. It is operated with one single cylinder and any cylinder from 84 to 224 needles can be used in the same machine, and be changed in a few minutes.

The manufacturers state that one operator can attend 2 to 4 machines on half hose (and from 15 to 25 on ladies' hose, and can make from 6 to 10 dozen a day on each machine on half hose and from 4 to 6 dozen on ladies' hose, according to gauge. The machine is so simple that an unskilled operator can learn to run it to perfection in a single day. The tension is always automatic in the leg and foot, and heel and toe, to any size and splicing yarn. This machine is built in sizes from 2¼ inches up to 4 inches and a glance at the illustration will indicate the simplicity of the constructon. Full particulars may be secured on application to the manufacturers, the BOSS KNITTING MACHINE WORKS, corner Elm and Reed Streets, Reading, Pa.

In order to obtain the best results in manufacturing, a good size is absolutely essential. This can only be attained by properly mixing and boiling the ingredients from which it is made. To do this requires a perfected size kettle designed to supply the need for a clean and effectual apparatus for mixing and boiling size. THE SACO-LOWELL SHOPS, with offices at 77 Franklin St., Boston, Mass., manufacture such kettles of cast iron, each one being provided with an agitator, the proper driving apparatus and suitable faucets. Such kettles are made steam jacketed if desired. Further information may be received by addressing ROGERS W. DAVIS, Southern Agent, Charlotte, N. C.

Vulcanized Fibre and its Uses.

The DIAMOND STATE FIBRE COMPANY, Elsmere, Del., issue a monthly bulletin entitled "Diamond Fibre Products." These bulletins are 7¾ x 10½ inches in size and so arranged that they can be bound in a special cover which is forwarded by the Diamond State Fibre Company upon request. These bulletins contain much instructive and educational matter in connection with the use of fibre products and receptacles.

Inasmuch as the building of fibre receptacles has been a particular study of this company for twenty-five years, they are not only possessed of a great store of knowledge in connection with vulcanized fibre products, but they have also manufactured a can, a basket, a barrel, a car, a tray or a box for almost every purpose for which a need has been found. They make a roving can with a smooth interior which will not dent and about which they have prepared a special folder. The bulletins mentioned are fully illustrated and will be sent on request to those interested.

Six years ago, or nearly so THE ACME PRINT CO., 320 North Ninth Street, Reading, Pa., became the successor of a large printing house founded a quarter century ago, whose specialty developed into printing for the textile trade.

It has been the aim of the Acme Print Co. to maintain the high position its predecessor had attained, and in addition to maintaining this high position, they have kept pace with modern improvements, and offer a printing service consistently planned to meet the wants of the textile trade and kindred industries.

Their theory is that good printing subtly suggests things that one cannot say of himself, his firm, his goods or his integrity, and that in buying their product, you not only buy that which is distinctive and attractive, but also secure the guarantee of quality and mechanical efficiency.

Besides printing this company also emboss, engrave and design, and welcome inquiries from the trade, which will receive prompt and courteous attention.

Otis Gravity Spiral Conveyors is the name of a new booklet issued by the OTIS ELEVATOR CO., 11th Ave. and 26th St., New York City. This book describes the interfloor movement of merchandise by gravity which is a subject of great importance to many manufacturers and business men. This book is fully illustrated and shows many types of the gravity conveyor in actual use. An inquiry to the address given will bring a copy of this interesting book free of all charge and while it may now seem that a gravity conveyor has no individual interest, a study of the book will probably indicate points in the plant where many dollars could be saved annually by the use of that efficient gravity apparatus.

Soluble softening oil, manufactured by THE ARABOL MFG. CO., 100 William St., New York, is one of the most effective softening and sizing oils in the market. As a softener it surpasses tallow. Manufacturers like it because it is easy to handle, is always reliable and is not influenced by temperature. It gives a smooth finish to the warps, the threads divide well in the lease rods, and the cylinders of the slasher remain perfectly clean. It is neutral and most suitable for strong and close woven goods, such as corduroys, velveteens, sateens, twills, umbrella cloth, cambric, warps, etc.

TRADE MARK REGISTERED IN UNITED STATES PATENT OFFICE

NON-FLUID OIL

The choice of the largest manufacturing plants wherever the owners demand

EFFICIENCY, ECONOMY and CLEANLINESS

Due to its ability to adhere permanently to bearings, there is no dripping or spattering on yarns and fabrics, walls, floors or belting. This elimination of waste means a reduction in lubricating expense and obviates the danger of damaging goods and rotting belting. Made only from the highest-grade mineral oils, NON-FLUID OIL is not affected by temperature, but retains its "body" in any climate. Lasts 3 to 4 times longer than fluid oils, or greases, hence is MOST ECONOMICAL.

Write today for full information and free samples.

New York & New Jersey Lubricant Co.

165 Broadway, New York. 1430 Michigan Ave., Chicago, Ill.

You Will Be Delighted With

Howe Mill Crayons

Try Them and See

Howe Mill & Crayon Co.,

LOWELL, MASS.

Free Samples on Request

TRADE MARK

73 to 75 PER CENT PURE CLARIFIED CONCENTRATED GRANULATED

CALCIUM CHLORIDE

Used by the largest Cotton Mills, Print Goods Manufacturers and Sizing Makers.

Write for Prices and Full Information.

Carbondale Calcium Company.

Home Office: Carbondale, Penna.

Branch Offices:—New York, Boston, Pittsburg, Philadelphia, Chicago, Baltimore, and New Orleans.

CHINA CLAYS AND TALCS

Adapted for

Loading and Finishing

DUNN & KRUSE

MAIN OFFICE, 180 SOUTH ST., NEW YORK

DOBBINS SOAP MFG. CO.

PHILADELPHIA

Makers of the Celebrated

Dobbins Cotton Softener

Also

Olammon

(A concentrated Scouring Compound)

and

DOBBINS ELECTRIC MILL SOAPS

Working Samples Cheerfully Furnished Gratis.

Double Fuel Economy

Highest Fuel Efficiency

Our Steam Coals are so high in fuel value that they should be used sparingly under the boiler. In other words, it takes LESS of our high grade steam coals to produce MORE power than of any ordinary steam coal.

Because of the above facts, there is a double economy in using our coals.

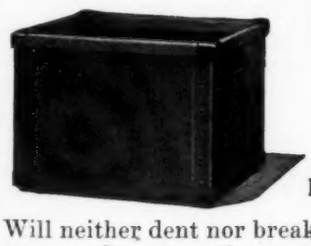
Furthermore, our coals are perfectly prepared, they run true to grade, and, we are known as the company with the coal AND the service.

In fuel value and in service, we give you greatest value.

Southern Coal & Coke Co.

E. C. MAHAN, General Manager Sales Dept.,

KNOXVILLE, TENN.



Diamond FIBRE

ROVING CANS
MILL BASKETS
BARRELS BOXES

Will neither dent nor break when subjected to hard usage. Stronger than wood, lighter than steel.

Write for Bulletin 13.

DIAMOND STATE FIBRE CO.

Bridgeport, Pa. Elsmere, Del.

Branches in Principal Cities.

The Southwark-Harris Valveless Engine.

The SOUTHWARK FOUNDRY AND MACHINE CO., Philadelphia, Pa., have secured the exclusive United States license to manufacture the Harris valveless engine, Diesel principle, which will hereafter be known as the Southwark-Harris valveless engine. The engine will be built in sizes from 75 to 1000 B. H. P., for both marine and stationary service and the recent extensive improvements to the plant and equipment of this company insure the same satisfactory service to customers which has been the policy of the company since its incorporation in 1836.

Leonard B. Harris the inventor of the Harris valveless engine, is now connected with this company as consulting engineer and naval architect, and his extensive experience in power engineering, especially in the marine field will be available for all prospective customers.

J. P. Johnston who has been interested and connected with the development of the Harris valeless engine will also be associated with the company in charge of oil engine sales. The manufacture of steam turbines, direct current generators, alternating current generators, air compressors, centrifugal blowers, centrifugal pumps, hydraulic pumps, hydraulic presses, steam hydraulic presses, surface condensers, jet condensers, barometric condensers and air pumps will be continued.

Double Service Tires Give Mileage.

The best tires in the country in point of service are those made of the same material that goes into the very finest high grade standard tires but on which the tread is twice as thick in both fabric and rubber. This thickness does not detract from the riding qualities in any way yet it gives astonishing service and makes the tire practically puncture-proof, as a tack or similar object cannot penetrate through this quality of material. These tires bear a 7,000 miles guarantee. These tires are sold direct to the auto owner and thereby the cost of commissions is entirely eliminated which makes the low prices possible.

Prominent Man Passes Away.

S. P. Darlington, late president of the CORTRIGHT METAL ROOFING COMPANY, of Philadelphia and Chicago, succumbed to a long illness at his home on March 11th. He was 79 years old.

Mr. Darlington was the founder of the company of which he was president. Prior to forming this company he had been identified with the Pennsylvania R. R. Company, as superintendent of the Harrisburg division, and had engaged in the manufacture of wheels and wheel materials in West Chester. He was a prominent Mason, and member of the Union League, one of Philadelphia's leading associations of business men. Throughout his long life he had endeared himself to a wide circle of friends, who will deeply deplore his loss.

The death of Mr. Darlington has naturally caused some speculation as to the future conduct of the Cortright Co., and it is gratifying to be able to state that the company plans to continue its business in the future along the same satisfactory lines as have characterized its successful operations during the past. Walter M. Boggs, who has hitherto acted as vice-president and general manager, is to continue in that capacity, and there will be no changes in the active management of the concern.

Diamine Fast Brown G F Patented.

This is a new dyestuff brought out by the CASSELLA COLOR COMPANY and fully described in Supplement No. 9 to their well known volume of cotton dyeing. The color is shown on raw cotton, cotton yarn and piece goods and judging from its properties as described it should no doubt prove of considerable interest to dyers of cotton who require a color to form the basis of terra cotta and similar shades.

This series of supplements appear to be of general interest to cotton dyers and all such who might not now be in regular receipt of them should have their names on the Cassella Color Company mailing list for future issues.

What kind of articles would you like to see in COTTON?

Which departments interest you most?

.....

.....

.....

Name.....

Address.....

Position .....

CUT OUT, FILL IN AND RETURN THIS BLANK.

Notice. **Because of the time necessary to collect data, or locate some person peculiarly fitted to write on a subject, applicants must not expect to see subjects suggested appear in the next issue. They will, however, appear in due time.**

PERMANENT COLORS CREATE PERMANENT TRADE

THE INSISTENT DEMAND OF THE CONSUMER FOR FAST COLORS MAKES IT IMPERATIVE THAT THE RETAILER, THE JOBBER, THE CUTTER-UP AND TEXTILE MANUFACTURERS RECOGNIZE THE QUESTION, FASTNESS OF COLORS, AS A MOST IMPORTANT ONE

Indigo The introduction of synthetic Indigo by the Badische Anilin & Soda-Fabrik in 1897 greatly lowered its cost, simplified its application and placed it on a scientific basis. The immediate practical result has been that Indigo is used on an ever increasing scale in the production of overall goods (denims) for working garments worn by artisans of all classes everywhere, as well as for navy blues with white designs, in percales and similar fabrics which are so largely used the world over for women's house and working dresses. Nothing has yet been found which is as well suited as Indigo for these and many other purposes, since it combines minimum cost, brilliancy of color and satisfactory fastness. In fact, the word "Indigo" to the consuming public is a guarantee of a durable and satisfactory color.

Indanthrenes Unfortunately, however, Indigo produces only a Blue, while the trade requires every shade in fast and brilliant colors. To Dr. Rene Bohn, Director of the Badische Anilin-& Soda-Fabric, Ludwigshafen, a/Rhein, should be given credit for the discovery of the series of dyestuffs derived from Anthracene, known as Idanthrene Dyes, which produce fast colors in every desired shade and tone. The introduction of these dyes in the cotton industry has created a new standard for fastness and brilliancy, in which combined respects they excel any colors heretofore known. Indanthrenes are actually permanent while the fibre lasts, meeting therefore every trade requirement, a fact so well demonstrated that today the word "Indanthrene" (pronounced In-dan-threne) is synonymous with "Fast Colors." There is probably no factor of greater importance in the manufacture of cotton goods than the fastness of the colors, in that it constitutes a most attractive selling argument, increases their popularity, and broadens the market for them.

BADISCHE COMPANY.

BOOK REVIEWS

All Books Reviewed Under This Heading May Be Procured From COTTON at the Published Price.

VOCATIONAL MATHEMATICS. By William H. Dooley, 341 pages, illustrated. Published by D. C. Heath & Co, New York. Price $1.00.

This book has the rather unusual feature of containing ordinary mathematical problems expressed in the language of the shop. This is intended to arouse the interest of the student and prepare him more fully for dealing with technical details. It contains a review of the essentials of practical arithmetic and detailed lessons in the rudiments of algebra. It also has chapters of calculations such as arise in the shop, the engine room, the electrical department, and the mill. The chapter devoted to textile calculations is chiefly in that section known to the trade as yarn calculations, but the special problems introduced showing the application of the calculations outlined will make this book not only of particular value for mill schools, but also of interest for home study purposes.

Weave Room Production.

"It is what you get for what you pay rather than what you pay for what you get which determines the question of economy in the purchase of cotton machinery and supplies," says a recent issue of *Cotton Chats*.

"Weaving without weavers at noon and at other times, Northrop looms add to the weavers' pay envelopes and to the product of the weave room.

"Note the following extracts from reports of our men and from customers' letters. In the percentages of product in all the cases cited, 100 per cent represents a continuous operation of the looms for the regular mill hours. The fact that Northrop looms can be operated at noon and at other times without weavers makes possible a product not otherwise to be obtained.

"At a mill with about six hundred Northrop looms: Weavers run twenty to twenty-eight looms each. Production from 110 to 112 per cent.

"At a mill with about seven hundred looms: This mill runs the looms eight hours extra time per week including the noon hour and gets a production of 110 per cent.

"At a mill without one thousand looms: They start up the weave room twenty-five minutes early in the morning and run through the noon hour; their average production for twelve months was 107 per cent.

"At a mill with about two thousand looms: They are keeping the looms in splendid condition and the weaving is running extremely well; the weavers run from twenty to twenty-six looms each, without help.

"At a mill making seamless bags: The overseer said the bag looms are all right; they have woven on the Northrop looms 120 bags per loom per week more than they ever wove on their common bag looms; weavers run twice as many Northrop looms each as common looms.

"From a mill with about twelve hundred looms: 'I am getting a very good percentage; with an hour at noon, my percentage is 107.39; average weaving costs this year, $.01015. Do you know of any mill beating this?'"

KNITTING MILL NEWS.

Notices of mill projects, additions or improvements are solicited for this department. Other notices pertaining particularly to the Southeastern section will be found in the Southern Mill Situation review.

MASSACHUSETTS.

MALDEN.—The Malden Knitting Mills, sweaters, jerseys, bathing suits and athletic goods, have confirmed the report that they are to erect a mill on plot of land recently purchased at Franklin street and Eastern avenue. The new mill is to be 40 x 150 feet, four stories high, to cost about $35,000. Equipment will consist of latest type winding, knitting and finishing machinery.

NEW HAMPSHIRE.

BERLIN.—The Berlin Knitting Company of Bangor, Me., has purchased the Brooks property at the corner of Pleasant and Mechanic streets, formerly known as Whitney Opera House, and will move their entire plant from Bangor to this city. They manufacture all kinds of heavy knitted goods and employ about 25 or more men and women.

NEW YORK.

NEW YORK.—The Katz Underwear Co., now at 45 East 17th street, and at Honesdale, Pa., have leased part of the sixth floor in the Victoria Building, 230 Fifth avenue.

OHIO.

TIPPECANOE CITY.—The plant of Superior Underwear Company, known as Mill 2, has reopened, giving employment to 100 hands. Mill has been placed in first-class running order, all machinery overhauled and the interior repainted and decorated.

PENNSYLVANIA.

ANNVILLE.—A. R. Kreider & Bro., hosiery manufacturers, report that plans are completed for a two-story brick addition to their plant. The enlargement, which will be 60 x 80 feet, is said to be necessary in order to meet increased business.

LEBANON.—A. L. Kreider & Bro. have begun the women's hosiery department of their local mill on a day and night shift. The company has been the recipient of some pretty good sized orders, necessitating the installation of additional machinery.

PHILADELPHIA.—Robert Watts has withdrawn from the Wear-Best Knitting Co., and the business will be continued by Henry J. Beck and Charles W. Payne.

PHILADELPHIA.—James Firth and Robert Eldmann have formed a partnership under name of the Camden Knitting Mills and have started to manufacture bathing suits and sweaters in Camden.

READING.—William F. Taubel of Philadelphia has taken a five-year lease on the second and third floors of the Douglas & Connard property, Sixth and Chestnut streets, and will install hosiery knitting machinery costing $28,000.

SPRING CITY.—The Keystone Stocking Mills, newly formed, to manufacture hosiery, will shortly open a New York office at 74 Leonard street. Work is well progressing on the installation of machinery, composed in part of 100 knitting machines.

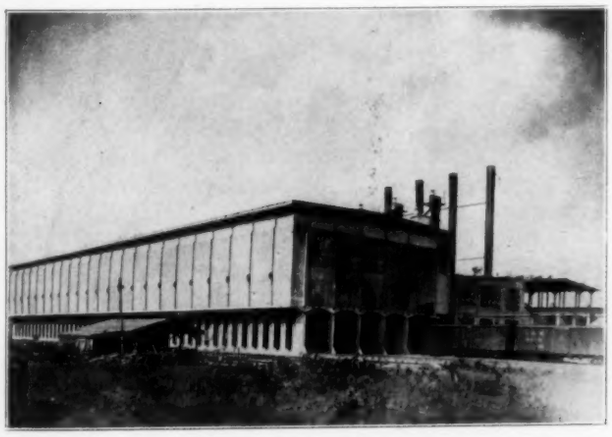
Reinforced Concrete Classing Sheds, Galveston Compress & Warehouse Company.
Unit Concrete Construction.

Concrete As An Investment

The changes which have made themselves apparent in general construction work during the past decade show conclusively that the attitude of the American business man has gradually forced the introduction of structural work which will stand the test of long time economy. To the casual observer this change has seemed gradual, but to those who are more deeply interested the change has been marvelously quick when measured in years. The growth in the production of Portland cement is a direct outcome of this change. Measure it by comparing the history of the growth of the larger Southern communities. 1896 was the first million barrel year in the history of the Portland cement industry. Building construction was just beginning to feel itself out, the sky lines of our larger cities were low. In 1913 the production reached 92,000,000 barrels; the sky lines of our cities reach to the clouds.

The basis which has led to the widespread use of reinforced concrete for general construction work is logical. The business man desires to use his money economically. His business has been established on a firm basis and he realizes that in order to cut down depreciation and maintenance costs he must build of a material which will be fireproof, waterproof and verminproof. He must at the same time look after the welfare of his employees. The structures should, therefore, be sanitary and the designs should carefully consider the question of supplying the maximum available light—the interior should be cheery and comfortable. At the same time the materials and construction must be capable of being easily formed and moulded into members of great strength so that they will sustain any reasonable loads which will be placed on them. These members, however, should be rigid and vibration resistive. Finally, the ideal structure must be permanent and of low ultimate cost.

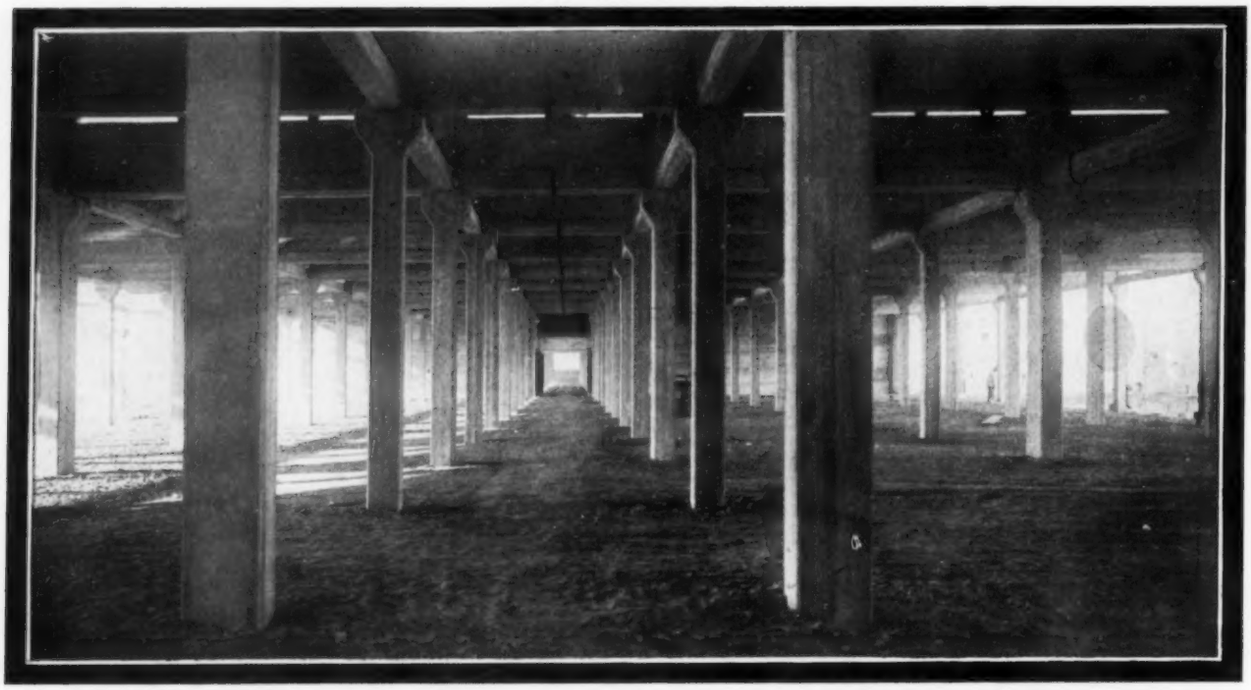
Reinforced concrete fulfills all these conditions. The Salem conflagration and the fire at the Thos. A. Edison plant are proof as to its practical fire resisting qualities. Mr. Edison says "Every brick and steel building which was attacked by the fire was completely destroyed, together with all the machinery they contained, while the damage done to the concrete buildings amounted to about 12½ per cent and of the machinery contained in the concrete buildings 98 per cent was saved and is now in operation. Manufacturing was resumed in some of the old concrete buildings within a few weeks after the date of the fire."



Reinforced Concrete Drying Storage Plant, Phosphate Mining Co., Nichols, Florida.

Concrete Loading Platform. Economical and Permanent. It Makes a Plant Look Businesslike.

ADVERTISEMENT.



Interior View Reinforced Concrete Classing Sheds, Galveston Cot ton Compress Co.

Confirmation of the waterproofness and verminproofness of properly built concrete structures may be found in the wide use of this material for tanks and cellars and the widespread use of Portland cement and concrete in the rat extermination campaign in New Orleans. Portland cement is a lime product, and, naturally sanitary. Therefore, concrete is nearly ideal from a hygienic viewpoint.

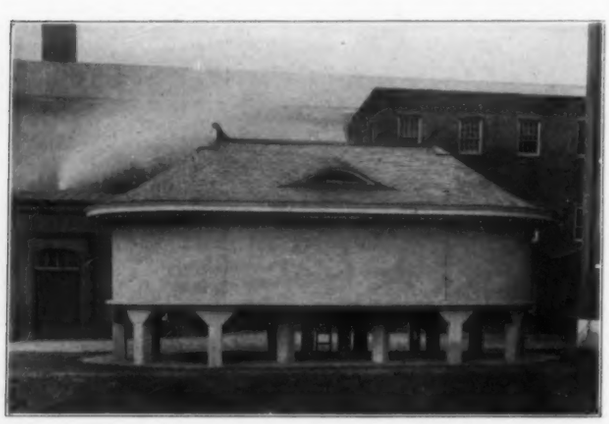
The normal window area in ordinary brick and mill construction and brick or frame buildings rarely exceeds 20 or 30 per cent of its wall area, whereas the normal window area for a reinforced concrete factory is 50 per cent and, in many cases, runs as high as 85 per cent. Owners of concrete buildings have shown that they have increased the efficiency of their employees from 5 to 10 per cent. and even more by having well lighted, clean rooms. Maximum window area means more satisfactory ventilation, especially during the summer months.

Concrete floors have been built to carry loads as high as 5000 lbs. per sq. ft. The monolithic character of construction (the floors and columns being poured at the same time) produces a structure that might have been carved out of solid stone. Machinery and shafting can be installed easily and the fastenings do not loosen. Wear and tear on machinery due to "chattering" is, therefore, eliminated.

The slogan "CONCRETE FOR PERMANENCE," is a heritage handed down to us by the Romans. Some of their concrete buildings and sewers are in use today. The steel reinforcing of our present day structures is practically perfectly protected by the concrete.

One of the great advantages in concrete mill or building construction is the rapidity of erection. Present day concrete structures, due to the tremendous strides taken in the design of mixing and placing machinery, grow almost overnight and they compare very favorably in rapidity of erection with any other type of construction.

Reinforced concrete type of building is the lowest in initial cost of all the fireproof types. It is generally found that on a four or more story factory or warehouse, reinforced concrete buildings cost from 10 to 12 per cent less than a similar design in structural steel properly fireproofed. Compared to non-fireproof buildings concrete



Concrete Storage Tanks May Be Designed For Countless Purposes. They Neither Rust, Warp Nor Decay.

Concrete Cottages May Be Made Absolutely Fireproof and Are Especially Cool in Summer.

ADVERTISEMENT.

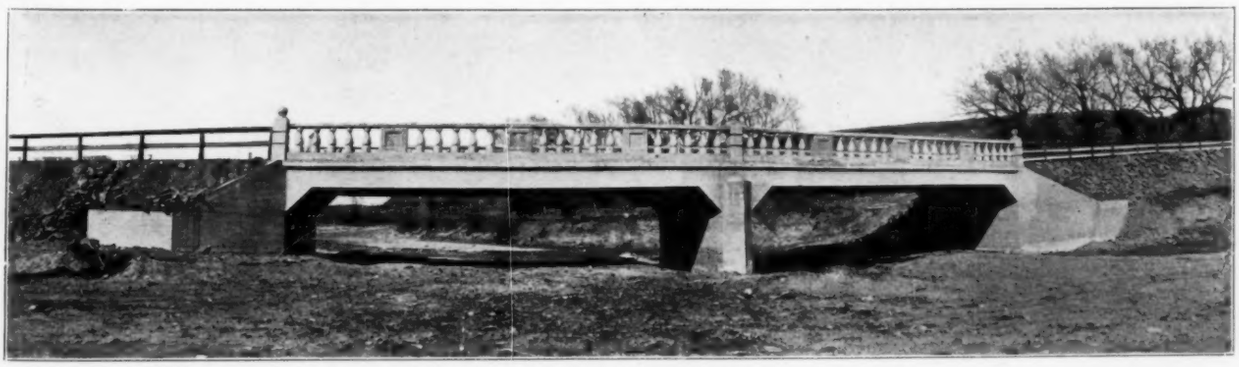
Narrow Portland Cement Concrete Highway Tupelo, Satillo, Lee County, Miss. No Mud, No Dust and no Ruts. Serviceable 365 Days in the Year.

will vary from equal cost on large propositions to possibly 30 per cent more on medium sized propositions. These costs are exclusive of building equipment.

The ultimate cost from an investment standpoint is the final conclusive argument which shows the economy of concrete construction.

Assuming that a cotton factory is contemplated. The estimated cost for mill construction is assumed to be $100,000; in reinforced concrete $115,000. The value of contents is assumed as $200,000. Tabulating for average conditions:

Yearly Charges:.	Mill Construction	Reinforced Concrete
Interest at 6 per cent	$ 6,000	$6,900.00
Taxes at 1 per cent	1,000	1,150.00
Fire Insurance:		
Building, at 70 cents	700	at 25 cents 287.50
Contents, at 90 cents	1,800	at 60 cents 1,200.00
Depreciation, at 1.25 per cent	1,250	at 0.25 per cent 287.50
Items Charged Against Mill Construction Only:		
(a) Loss due to vibration, assume	450	
(b) Increased light, 1 per cent increase in efficiency of labor. Assume labor equal to ¼ value of contents or $50,000	500	
(c) Vermin losses	100	
(d) Heating charge	100	
(e) Protection against fire at 0.5 per cent on value of 50 per cent of building and contents	750	
	$12,650	$9,825.00
Annual saving of concrete over mill construction		$2,825.00



Reinforced Concrete Girder Bridge. Build Your Bridges for Permanence. Concrete Bridges Are Strong and Durable. They Eliminate the "Money Leaks" for Maintenance, Painting and Inspections.

ADVERTISEMENT.

Concrete Sewers Have Been Built for Centuries. The Reinforced Concrete Sewers of Today Represent the Acme of Low First Cost and High Efficiency.

A Concrete Landing on the Mississippi. The Curbing is Already Installed and the Workmen Are Placing the Slabs of Concrete.

$2,825 Capitalized at 6 per cent represents the interest on on investment of $47,083.

The illustrations of buildings and accessories shown in this article exemplify the widespread use of concrete for general plant construction work. They include both monolithic work and unit construction, the unit construction being moulded on the ground and hoisted into position by using derricks or gin poles.

Permanent Roads of Portland Cement Concrete.

The tremendous impetus which has been given to the construction of "good roads" will result, as far as the business interests are concerned, in "consistent prosperity." The Hon. Albert J. Beveridge has stated that "One of the most conservative and accurate American economists has shown by careful figures that American farmers lose nearly ten hundred million dollars each year because they cannot get what they have to sell within reach of the purchaser." This results in periodic stagnation in certain lines of industry and induces economic losses.

Bad roads isolate the farmer, he becomes a hermit at certain seasons of the year. In the long run this results in decadence inasmuch as he cannot, perforce of his surroundings, get either his products to town or merchandise to his farm. His children are deprived of educational facilities.

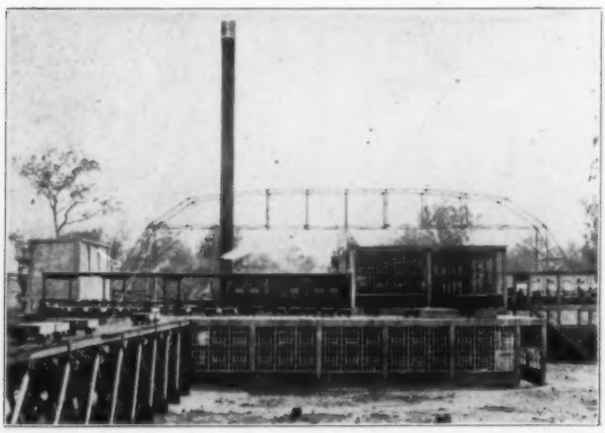
The widespread construction of improved roads has led the American people, in their haste to better conditions, to attempt to build "maximum mileage" roads which cannot and will not even approximate the life of their bonds; roads which will entail annual maintenance charges of from $750 to $1000 per mile per year.

Experience has proven that the Portland Cement Concrete Road can be built at but slight increase in cost over the ordinary macadam roads and that its yearly cost per mile per year for maintenance is less than $30. Over 14,800,000 square yards were built in 1914. Expressed in miles this 1914 Portland cement concrete yardage, if built in the form of a road 9 feet in width, would reach from Washington to Austin, Texas, via Atlanta and New Orleans, with feeders running from Atlanta to Jacksonville, Atlanta to Nashville, Atlanta to Memphis, and with a road from New Orleans to Memphis thrown in. These permanent Portland cement highways last indefinitely and are serviceable 365 days in the year; they are practically flat, are non-slippery and are suitable for both automobile and team traffic.

The people of the South are bound to emancipate themselves from the mud by constructing permanent, durable highways. *Portland cement concrete highways and streets are economic necessities.* They are the cheapest type of all permanent pavements.

Concrete Bridges.

Permanent bridges are the stepping stones to permanent roads. Concrete bridges represent business judgment. Many counties are now building their own permanent concrete bridges, the first cost is low, the labor is home labor,



Reinforced Concrete Saw Mill, Bayville, La. The Most Economical Building Material is Concrete. It prevents accidents by Flooding the Interior With Sunlight.

This Picture is From Missouri. It Shows You the Tremendous Steps Taken to Protect the Banks of the Kaw River.

ADVERTISEMENT.

the sand and stone obtained from local pits and quarries. The cement is obtained from local dealers and all necessary reinforcement is easily obtained from Birmingham. The money expended is kept at home and no future money need be expended for maintenance. The bridge grows stronger with age and is free from vibration.

Reinforced concrete bridges possess individuality, durability and economy.

Portland cement concrete may be aply called the universal structural material. To the casual observer the most extensive concrete work appears above ground, the trained engineer, however, appreciates the tremendous value of this material for underground work. Concrete has been used for the construction of sewers for hundreds of years. Within the past decade, however, the use of relatively thin reinforced concrete sewer pipe has grown rapidly. It may be designed to fit the most diverse locations. There is no warping or twisting of the concrete pipe during the process of curing and when laid the sewer offers considerably less frictional resistance to the flow of sewage than do pipes built of irregular shape. The concrete pipe can be made sufficiently strong to resist practically any earth pressure and like concrete buildings, bridges or roads, the well-made concrete pipe does not need to be maintained.

From the economical standpoint concrete pipe possesses many advantages. Savannah, Baltimore and Philadelphia are among the many cities which have, within the past few years, constructed considerable mileage of reinforced concrete pipe varying in size from 24 ineres to 6 feet. Competitive bidding showed that pipe of this material could be installed much cheaper than ordinary terra cotta or brick sewers, the saving being from 10 to 20 per cent, and even more. Those in charge of construction in those cities speak enthusiastically of the possibilities of this type of construction, inasmuch as the pipe is strong, durable, resistant to abrasion and efficient as to sewage flow.

That reinforced concrete may be very readily used for isolated structural work is clearly shown in the illustration of the saw mill at Bayville, La. Especial interest is attached to this illustration in view of the commodity handled at this plant. The concrete structural members are fire resistant, much more rigid than timber and the flood of daylight throughout the mill materially lessens the chance for accidents.

During the past few years the question of levee protection has been forcibly impressed upon the South, due to the failure of earthen levees. General illustrations of the application of concrete for permanent work of this class are shown, the illustrations being of levee and revetment work along the Kaw River. The thin slabs (from 4 to 6 inches thick) of reinforced concrete are usually laid in 10 foot strips, much like concrete sidewalks and in the case of one illustration shown the concrete nearest the stream bed is molded in the form of loose square slabs which are fastened together with copper or galvanized iron eyes and staples. Sometimes long slender concrete sheet piles are cast and then sunk in place by use of an air or water jet. Owing to their permanent character concrete piles are not subjected to rust, rot, erosion, fire or the toredo and have proved to be economical and reliable. In many cases wooden bearing piles have been encased in reinforced concrete "for additional protection," when subjected to erosion, fire or the toredo.

This article has dealt with a few broad uses of concrete. It has dwelt specifically on the economical as well as structural sides of durable construction. There are countless uses which have not been touched upon, the ingenuity of engineers is constantly enlarging them. To the business man engineering means making a dollar go the farthest: experience has shown that a construction dollar will go farthest when it is is expended with the idea that conservation and economy dictate the selection of the lowest ultimate cost material.

Concrete For Permanence

The Reinforced Concrete Structures in the Plant of Thos. A. Edison Were the Only Ones That Survived in the Fire of December, 1914. Repairs to Them Cost Less Than 12½ Per Cent of Their First Cost and Machinery

ADVERTISEMENT.

SLAG--Double First Cousin To Cement Makes Strongest Concrete Known

If you knew nothing about the action of water on cement, it would be difficult to convince you, except by a practical demonstration, it is easily and quickly transformable into monolithic bricks or blocks capable of supporting enormous weight per square inch.

Slag is a double first cousin to cement and, consequently, in considering the question of its comparative value as the coarse aggregate in concrete, you should accord due weight to its well known and wonderful affinity for cement, established through virtue of the silicates it contains, having been set free during its production at the Blast Furnace.

Slag--A Fireproof Material Subjected To A Greater Degree Of Heat During Course of Production Than The Concrete Made Therefrom Is Ever Liable To Encounter

Slag, as it leaves the furnace, flows like water and at a temperature exceeding 2800° Fahrenheit. In this condition it is discharged in thin layers down steep embankments and allowed to cool slowly in the air. These slag banks are frequently 100 feet or more, in depth and contain absolutely no dirt, trash or foreign matter of any nature. When thoroughly seasoned, the slag is dug with steam shovels, passed through the crusher and over a rotary screen and separated into sizes from 0 to 3½ inches, to meet the requirements of the experienced Engineer or Architect, who specifies "Air Cooled and Well Seasoned Bank Slag."

Slag Concrete Stronger Than Concrete Made With Hudson River Trap Rock

The most recent authoritative test of slag concrete against Hudson River Trap Rock concrete was conducted by Professor Harold Perrine of Columbia University, Department of Civil Engineering. The result shows slag concrete 490 lbs. greater per square inch in compressive strength and 14.9 lbs. lighter per cubic foot. This test is in line with every other similar test made in this or foreign countries. Basic slag weighs only 2000 lbs. to the cubic yard.

If you "know it all" the next paragraph may be offensive. If you know enough to know you have something yet to learn, you will ask for the data and authorities referred to.

Lack of information may be excusable even upon a subject vital to success in your profession, business or to your personal welfare. Refusal to investigate, however, when the data is set before you and authorities cited for your consideration, denotes, to put it mildly, inertia of gray matter or, if I may be allowed to coin an expression, *sine mente inter aures.*

The cement manufacturers are furnishing the country with evidence impossible to disprove, relative to the superiority of concrete construction and the insurance people are among their star witnesses. If you have been converted, well and good, but remember, there is concrete and CONCRETE. If you use poor cement, inferior sand or a coarse aggregate that will explode and fly to pieces, or disintegrate when subjected to great heat, you are wasting your money to no purpose. Such a concrete structure may be unburnable but it is not fireproof.

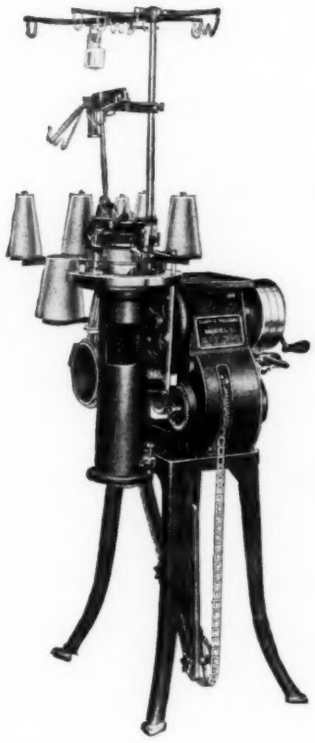
From month to month during the present year, we will contribute to "Cotton", short articles relative to the value of slag concrete, which we hope may be of interest to its subscribers and we will, on request, be pleased to mail direct much valuable and interesting data on the subject which we have collected in this country and beyond seas and compiled in readable shape.

Atlanta Sales Agents
Dixie Engineering & Insulating Company
711 Empire Bldg.
Atlanta, Ga.

BIRMINGHAM SLAG COMPANY
S. G. Reynold's, Secy.
1001-6 Woodward Bldg.
Birmingham, Ala.

KNITTING SUPPLEMENT

WHY NOT HAVE YOUR PLANT FLEXIBLE?



IT is no longer necessary to buy hosiery machines of special diameter that can be used for only one class of goods.

By installing our Model G machines you can make all sizes of men's, women's, children's and infants' stockings upon the same machine and without the use of ribbers.

Established 1865

Scott & Williams

Incorporated

88 Pearl Street

BOSTON

NEW YORK UTICA

ABERFOYLE MANUFACTURING COMPANY

DYERS, BLEACHERS, GASSERS

DYERS OF COLORS FAST TO SUN AND BLEACHING

MERCERIZED YARNS

Our Yarns are the Products of American Mills

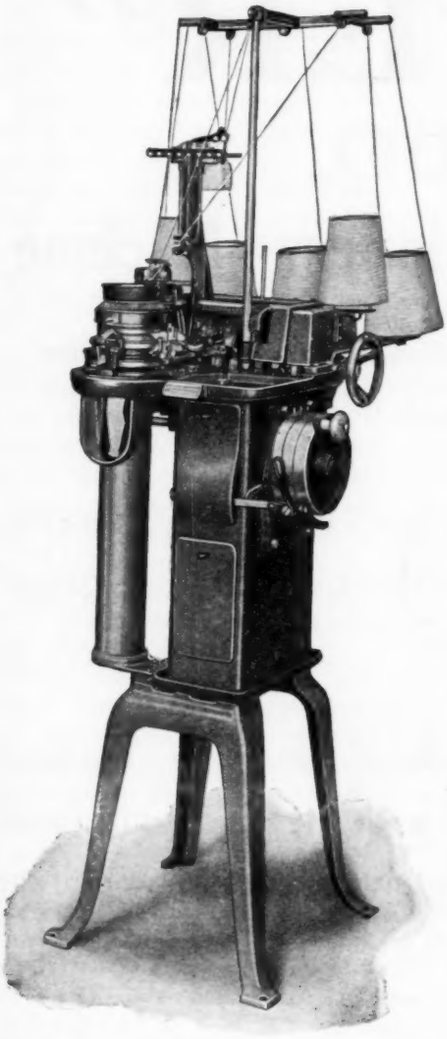
MAIN OFFICE

CHESTER, PA.

402 MORRIS BUILDING
PHILADELPHIA

746 INSURANCE EXCHANGE
CHICAGO

Revolving Needle Cylinder
HOSIERY KNITTERS



With Non-friction needles, and rocking sinkers, producing the finest quality fabric.

Five Yarn Changer Fingers.

High speed in straight knitting and extra high speed in reciprocating.

Greatest range of stitch adjustment.

Screw adjustment on every adjustable part.

Simple and convenient transfer.

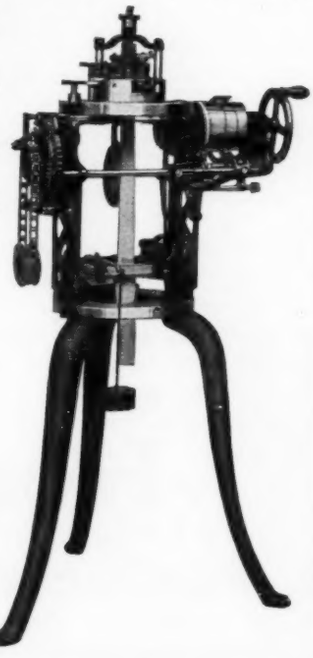
Perfect Plating.

RIBBERS

Single and double feed.

With selvage welt, French welt, Striping, Splicing, and Dogless attachments.

Stationary and Revolving Stopmotions.



Body Machines

From the coarsest to the finest cut.

Rib Machines, Plain and Automatic.

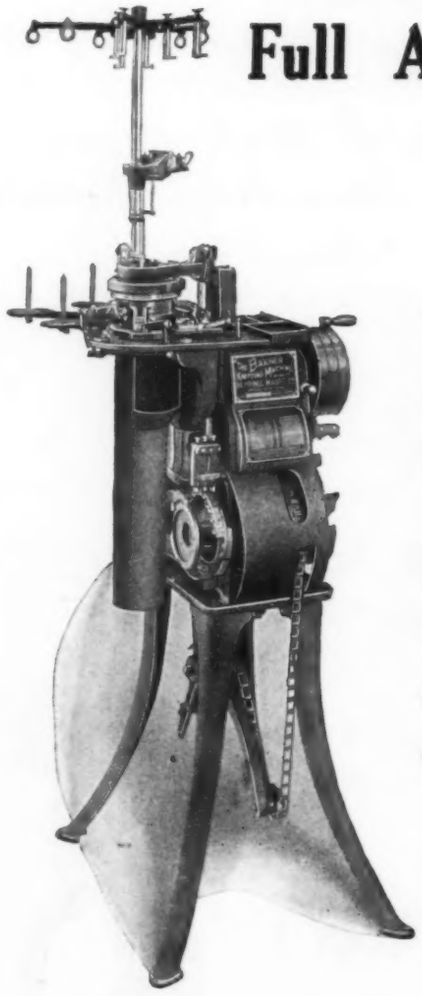
Plain Machines, with Sinkers, with Two to Four-color Yarn Changers.

H. BRINTON CO., Philadelphia

THE "BANNER"

A NEW MODEL

Full Automatic Hosiery Machine



The 260 Needle 3 3-4 Diameter, Extra Fine Gauge Knitter

All parts accessible from front of machine

These new machines have made possible the success of new lines of extra fine gauge hose and half hose.

Many leading mills of the country are now largely equipped with these new machines and their absolutely successful operation demonstrated.

They can be seen in operation at our plant.

Hemphill Mfg. Co.,

Pawtucket, Rhode Island

Production 100 Machines Weekly

Over 19,000 "Banner" Knitters in Successful Operation.

Eleventh Annual Convention of Knitters

In spite of the rain and generally disagreeable weather conditions, the meeting hall at the First Regiment Armory, Philadelphia, was crowded to its capacity on Tuesday morning, May 4th, when President Leippe called the meeting to order and announced the opening of the

First Session.

of the eleventh annual convention of the National Association of Hosiery and Underwear Manufacturers.

After prayer, the president said he regretted to announce that his Honor, Mayor Blankenburg had been detained but he had sent a very worthy substitute in DIRECTOR LOEB. He then introduced Mr. Loeb, who spoke in an optimistic vein and predicted a protective tariff and a bright future for American manufacturers. At the conclusion of his address of welcome President Leippe said, "On behalf of the convention I want to thank Mr. Loeb for the address he has made. His thoughts are on the right line. Last year, in my address, I stated that one of the troubles of business was that business men did not enter politics. I stated that it was the business of every business man to get into politics. Some business men heeded that; some did not. Let us hope for better things."

President Leippe then introduced EDWARD JAMES CATTELL, of Philadelphia, as one of the most optimistic optimists of his acquaintance. Mr. Cattell gave his hearers a serious and earnest talk on the wisdom of optimism which he interspersed with stories provocative of much laughter. Some extracts follow:

"There was not a man last year who could see that war-cloud which came when we were changing our banking and currency system. Here was a situation that had never been contemplated by any business man. The result was inevitable—a partial paralysis of our whole industrial system. We had one of the most awful situations to face, of any people in any age. You have had to face and go through this awful world-curse, and you are coming through it all right. You are good, level-headed men and will win out. Let us look facts squarely in the face; be honest with ourselves. I believe there is a well of good in all things.

"The bloody chaos over seas has driven home to those who believed in our form of government the special features in that government which commend it to the intelligence of mankind. First, this European tragedy has shown the danger of concentrated power—the danger, also, of allowing the great mass of the people to abstain from thinking, talking and acting upon great public questions.

"It has also shown to the commercial world, and to our wide electorate, that the basic principle on which the real American policy of protection rests, is absolutely unassailable and unshakable. For, that foundation rock of the policy under which the nation flourished for many decades was that a nation should be self-sufficing, and able to live without depending upon other nations.

"The idea which first suggested high tariff was to encourage the building of a wide range of industries, the encouragement of the production of a wide range of raw materials necessary to the life of that wide range of industries, and the consequent development within a nation of the agricultural and manufacturing power to live within itself.

The sudden tragedy of August last has shown that war is a possibility, that war continues a factor which must always be kept in mind; consequently, the tariff question, when it comes again before the people, will come in a new form: It will not only stand for a doctrine which promises a wider employment of the people and more remunerative wages, but it will stand for the only doctrine, through the practice of which a nation can insure its own life. The war has also brought supporting evidence—indeed, I regard it convincing evidence—in favor of another division of this great protection doctrine—that represented by necessity to possess a commercial fleet for the distribution of product over seas.

"An American commercial marine has been ridiculed as unnecessary for years by the highest experts. Three months of actual war conditions has turned into a tragic joke this idea of the folly of possessing ships under the American flag. This has brought home the necessity of a navy to protect our life, a commercial navy to protect our commerce, and it has brought this lesson home in an unforgetable manner.

"Here, then, are three great benefits that have already come to America out of the disaster over seas; new appreciation of the wisdom of the fathers in establishing our form of government; new appreciation of the value of a protective policy which tends to render a nation self-supporting and self-sufficient; new appreciation of the necessity to provide a monetary system equal to meet the demands of commerce and a commercial navy equal to the task of carrying our manufactured products and our raw materials to the uttermost parts of the earth.

"Coming to a closer view of the subject, I would suggest, as basis for a hopeful attitude toward the future, the circumstance that when peace comes to the warring factions abroad, a populous section of the world's surface will make instant demands upon our sources of production for those primary tools necessary to the opening up of a new country. What I mean is just this:

"The use of high explosives to an extent never before witnessed in warfare and devastation wrought by armies sweeping over the face of Europe—armies greater in number than the world has ever witnessed in action—has brought widespread destruction of roads, bridges, railroads and a thousand and one of the commonplace or basic tools of commercial and social intercourse—utilities and aids which were created for Europe, in many instances, centuries ago. Out of this awful disturbance Europe will emerge a country in many respects resembling our own land during the last half of the nineteenth century—a land wholly undeveloped, requiring the work of the bridge builder, the road builder, the small or temporary home builder—all the primary or preliminary work which is to precede the more expensive and more permanent construction work of a later period.

"Now, as America was the last great continent to indulge in this class of work, America is best fitted to meet the

demands born of the new situation in Europe, and at the close of the war, I believe this country will fall heir to a line of European commercial demand unexpected by every observer a year ago; an entirely new body of trade entirely outside of the general anticipation of those who figure on world commercial development."

The president then introduced PHILLIP HOUGH of New York who spoke on

Export Possibilities.

and said in part:

"The greater part of industrial Europe is now inactive through lack of labor, and this situation is likely to continue even after the war. The reconstruction period will be a long one moreover, so that it seems to me that I could change the title of my talk from 'Export Possibilities' even beyond 'Export Probabilities' to 'Export *Certainties*,' and this certainty to apply to all American manufactures, as well as to the manufacture of hosiery and underwear.

"A great deal has been heard in recent years about export trade, and just now the American manufacturers see the unprecedented opportunity they have long sought to establish their goods in foreign markets.

"The knowledge of the export manager of a manufacturer who does a world-wide export business is very varied and very extensive. Such knowledge as is summed up in the export commission house includes an understanding of the customs tariffs of every country, ocean freight rates to any port in the world, the commercial geography of the world, the manufacturing resources of *this* country and of every other country, a practical knowledge of four or five languages, a thorough understanding of international banking, an acquaintance with the import trade as against the export trade of this country and other countries as well, and of the red tape of customs houses.

"A knowledge of commercial geography is very essential and it makes a lot of difference if a manufacturer knows in what latitude a city lies and at what altitude.

"There are a good many American manufacturers who do an excellent export business and have been doing it for many years; for instance, such people as United States Steel Corporation, all of the automobile manufacturers, etc., and it is difficult to go to any foreign city, no matter how small, and not find a branch of the Standard or Vacuum Oil Co., the selling agency of almost every typewriter company, and you can hear the Victor phonograph from Shanghai around the world and back again. I have heard American phonographs in small towns of Central America which contained less than 200 inhabitants and back among the mountains of Syria. It is quite a shock at first to hear in one of these small dirty towns along towards sunset a shrill voice singing "Wait Till the Sun Shines, Nelly."

"A Department of Commerce has been established in Washington, under which there are several bureaus, and any American can get information on any subject by simply writing to Washington.

"With regard to sending out samples. Most manufacturers whose samples are of value require the prospective foreign customer to pay full price for the same. The samples are worth the price they ask, but the manufacturers, who generally have a minimum of knowledge of customs house practice, do not know that the firm who gets the samples pays duty on them to get them into the country. For instance, a firm in Brazil receiving $3.00 worth of samples of silk hosiery might pay three or four times this amount for duty on these samples, so that when a sample discount is requested it seems only fair that this should be granted by the manufacturer.

"The American salesman who goes abroad with his American selling methods is a liability rather than an asset. Until recent years American manufacturers did not send out men to South American markets who could be truly called representatives. Even today most manufacturers send out men on commission, and these men sell wholesaler and retailer alike in order to get all they can out of it, and this indiscriminate selling is another cause of the lack of repeat orders, as no wholesaler will buy goods a second time from a firm who sells the retailer at the wholesaler's prices.

"In South America in order to get on at all, the foreign salesmen must be a model of politeness and this same politeness should be carried out in all correspondence to Latin America. The ideal traveler is so pleasant always (and pleasant in Spanish, not English) as to be always well received, not only by the buyers of the houses he visits, but by their principals. In the Far East this same affability is equally necessary to the success of any salesman.

"The foreign traveler must above all have a good knowledge of the country to which he is going. He can get along without this knowledge, but so many obstacles and annoyances will present themselves and he will be so handicapped that he will find himself only about 25 per cent efficient.

"After the necessary knowledge of language the foreign traveler (and this, too, applies to the manufacturer who does his own exporting) should have a good knowledge of international banking, and I think I could safely say that 33⅓ per cent of his entire knowledge of exports should be on the methods of securing payment for foreign orders. The salesman traveling in this country simply quotes a price less a cash discount, with perhaps a freight allowance, but the first question the foreign customer asks is, 'What are your terms?' and he must know all about the banking resources of the country he is in and their connections in New York, and all about acceptances of drafts and the different ways of discounting them in New York or of sending them forward for collection. He should also know how to figure in metric units and have a good knowledge of different currencies, especially of sterling and francs."

The next address on the program was by THOMAS CONWAY, JR., of Philadelphia on changes in

Methods of Commercial Borrowing

under the Federal Reserve Act. Mr. Conway said in part:

"The Federal Reserve Act contemplates that only certain well-defined classes of commercial paper shall be eligible for rediscount or purchase by the Federal reserve banks.

"It is important to note that the main purpose of the Federal Reserve Act is to exclude all classes of paper which are not self-liquidating, and to include only such paper as represents an actual transaction in the consummated purchase and sale of merchandise intended for resale and consumption.

"The replies of the larger clearing houses of the coun-

try, in answer to a letter sent out by the Reserve Bank Organization Committee, asking for a definition of commercial paper, indicated that almost without exception, the problem was recognized to be that of preventing abuses in the issue of single name paper.

"Single name paper includes all notes made to the order of the maker and endorsed by him; that is to say, paper where there is only one firm or name upon it. In some cases, the paper of corporations bears the personal endorsement of leading stockholders or officials, but even when this is the case it is known as single name paper.

"In order to encourage strict commercial paper of this character, it has been suggested that a different rate be established, and that strict commercial paper be discounted at a lower rate than single name paper.

"The regulations issued by the Federal Reserve Board in 1914 were very stringent. Business organizations protested against the severity of these requirements. In consequence of the various representations and objections which were made, the Federal Reserve Board materially softened the requirements which must be met by eligible commercial paper when offered for rediscount, leaving to each Federal Reserve Bank the right to determine the method of certifying the eligibility of commercial paper, thus enabling those banks to form their procedure with due regard to local conditions and customs.

"It is too early to accurately estimate the effect of the Reserve Board's requirements, which were prompted by a desire to slowly educate its customers in giving statements. It is clear that a progressive development, in scope and detail, of the regulations is contemplated with a view to improving the general quality of commercial paper offered for rediscount.

"The greatest incentive to increased investments in commercial paper by member banks will be the fact that commercial paper, meeting the requirements of the Board, can be converted into cash whenever an emergency arises through the rediscount of it with the Federal reserve banks. This is the only class of banking asset which a bank may certainly count on as being always liquid. Commercial paper will largely supercede the call loan as the secondary reserve of our member banks, thus diverting a large amount of money which has heretofore, of necessity, been used in more or less speculative transactions, into commercial channels to the great profit of our country and the welfare of our banks."

DUDLEY BARTLETT, chief of the Foreign Trade Bureau at the Philadelphia Commercial Museum, was the next speaker. Mr. Bartlett took as his subject

Marketing Knit Goods in Great Britain

and said in part:

"There are several methods of selling knit goods in Great Britain, all more or less practical. Before you begin your campaign for English trade, however, it will be well to realize how that trade is handled and what are the usual and accepted methods of business, and then to determine just what method you will adopt to become acquainted with the dealers and to solicit their trade.

"In the first place make up your mind before you begin your campaign for English business whether you wish to sell to the wholesale or the retail trade, for you may be reasonably sure that you cannot sell to both. The line is drawn very sharply between these two classes of business houses and the mere presence of a salesman who is catering to the wholesale trade in the office or anteroom of the buyer for a retail establishment, no matter how large, is considered sufficient reason for crossing his name off the books of the wholesale establishment, and it is remarkable how quickly news of this nature travels in London.

"The majority of the wholesale soft goods houses in England have been established for many years, the present heads of a number of these establishments being the grandsons or great-grandsons of the original founders. I am inclined to believe that as a whole it would be difficult to find any class of trade in any part of the world which is stronger than or indeed as strong, financially, as the wholesale soft goods trade in England.

"The various departments in these houses are run, to all intents and purposes, as separate organizations. The manager of the hosiery department, for instance, not only

RETIRING PRESIDENT CHARLES E. LEPPE.

buys but also, to a large extent, superintends the sale of the goods in his department and is expected to show a reasonable profit at the end of each year. Gauged from our standard of payment for such services, his salary is a small one, and he is not infrequently a man of very moderate ability although usually thoroughly familiar with his own line. He is unwilling, and in many cases, totally unable to figure out the delivered cost of an article quoted on an f. o. b. basis. On the other hand it is a comparatively easy matter for manufacturers in most lines to quote a price delivered at the warehouse in London.

"I have found that those who are quoting c. i. f. or delivered prices add to the price a sum sufficient to cover any probable fluctuations in freight or extra charges which may be incurred, and that such prices will have consideration where lower prices will have none whatever, even if they figure out on actual delivery price somewhat higher than the f. o. b. quotations.

"Now as to the best method of selling to this trade, I would say that I am inclined to recommend the appoint-

ment of a local agent to sell on a commission basis. Such an agent need not necessarily be an American, in fact in most cases I believe an English agent is preferable, but he should be a man well introduced to the trade. This is a point on which too much stress cannot be laid.

"The American manufacturers who are most firmly established in London today have such representation, and only a few of them are in charge of American managers. Those which have Americans at their head usually employ English salesmen.

"You have heard much regarding the liberality of German manufacturers in the extension of credit, and there is no doubt that their success in many countries has been largely due to their wilingness and ability, through the aid given by German banks, to offer extraordinarily long credits.

"In the English market I do not find that this has been by any means the principal cause of their success. The bulk of the trade in a large majority of manufactured products is handled in England by wholesale distributing houses or jobbers, a very large proportion of whom are old, thoroughly well established, and financially strong firms. These houses do not ask or expect excessively long credit. On the contrary a large proportion of them habitually discount their bills.

"A German manufacturer, however, when he approached a new firm, made a practice of ascertaining the financial standing and credit reputation of such a firm, and if the information secured was satisfactory, he put aside as unessential and unimportant any questions as to terms of payment, and although he might know that personally he would be unable to finance any business based on payment several months after delivery, he was so sure of his banker's backing that his agents were authorized to announce to prospective buyers, in good financial standing, his readiness to offer any terms to which the buyer had been accustomed. In fact the question of terms was treated as a matter of minor importance, and although the merchant on his part might expect to take advantage of the usual discounts, he was naturally gratified and flattered by such action on the part of the manufacturer.

"In conclusion I only want to say that if our knit goods manufacturers can compete with English manufacturers in the South American or any other neutral market, they can in all probability compete with the English manufacturers in England. With better deliveries, better selling equipment and a more thorough knowledge of South American customers than our American manufacturers have, they have a great advantage in that part of the world."

This address closed the morning session with the exception of some routine business. The afternoon was devoted to executive sessions of the different sections of the association and in visiting the exhibition hall, which was crowded until late in the evening.

Wednesday Morning Session.

The session on Wednesday morning was called to order at 10:00 A. M. in the convention hall and the first address was by I. F. STONE, president of the National Aniline and Chemical Co., of New York, who spoke on the

Manufacture of Aniline Colors

in the United States. In discussing the present and future dyestuff situation Mr. Stone stated that "no supplies are now coming from Germany, which is the principal source of supply for these products. Of the total consumption of dyes in America, it is estimated that about 80 per cent is furnished by Europe, and of this quantity that Germany furnishes about 75 per cent; in other words, of all the dyes imported from Europe, Germany furnishes about three quarters. The United States is, therefore, now absolutely deprived of nearly 80 per cent of their supply of aniline colors. When this supply will again be resumed it is impossible for anyone to state at this time, but it is very apparent the prospect of American consumers securing a normal supply of dyestuffs from European sources for a long time to come is very uncertain.

"American consumers are now turning for possible relief to American manufacturers, but if Europe has been supplying them with 80 per cent of their consumption it is evident that American manufacturers have only been supplying them with about 20 per cent, therefore, they could continue, in the beginning, to supply this percentage of the consumption, under normal conditions, and the serious question is, whether or not the American percentage can be increased, and if so how quickly and to what extent.

"The manufacture of aniline dyes is really in three stages, that is, first from the raw materials, such as benzole, toluole, napthaline, etc., what is called the intermediate materials are manufactured, such as aniline oil, nitrobenzole, aniline salts, and a host of other products nearly a hundred in all, and from these intermediate products the aniline dyes are finally manufactured. The principal raw materials are natural products of the United States, benzole, toluole, napthaline, etc., and in normal times are sold at about the same prices here as in Europe, so that American manufacture starts out on an even basis with Europe as far as the supply of the first raw materials is concerned. It is in the manufacture of the second stage, or intermediate materials, that the American manufacturer encounters a check, as it was in the manufacture of these materials that European factories, particularly Germany, excelled, even with their raw material at the same cost as could have been supplied by American producers, and it is for this reason that American manufacturers of dyes could buy cheaper from Europe than they could manufacture here, and were doing so at the time the war commenced.

"Obviously then, the only thing they could do in order to continue their manufacture of colors, was to make their own intermediate materials, but the beginning of their manufacture is at once attended with the investment of a large amount of money for factories and machinery. The manufacturers of colors here are, therefore, confronted with the proposition of whether they can afford to risk the investment of this large amount of capital and the possible accumulation of a lot of high priced materials, which they could not sell at prices based on their increased cost in case the war should end and more or less normal conditions be again resumed in a short time.

"The only possible solution of this problem, which would protect them in normal times in the development of this industry, would be the help of the United States government in the way of a higher tariff which would prevent the importation of colors at a lesser price than they could be manufactured here, and some sort of an anti-dumping

clause which would prevent the selling of colors into this country at lower prices than they are sold elsewhere, in order to prevent their successful manufacture here. A number of conferences between American chemical manufacturers and officials of the government have been held, and while the government shows every interest in the situation, particularly in the enactment of some sort of an anti-dumping clause, and some time in the future will probably enact a proper tariff protection, it will not help out the present situation, and capitalists are not willing to risk the investment of their money under these conditions.

"Therefore the matter is really in the hands of American consumers, as if they are willing to support the American manufacturers for a sufficient length of time for them to get well established, i. e., continuing to pay prices for colors necessitated by the manufacturer of intermediate materials here, the American manufacturers will then invest the money and increase their production to any extent which may be necessary. I am very glad to say that many of the American consumers are showing a willingness to do this. We have recently put before them a proposition to manufacture a direct black, and if they are willing to make contracts with us over a certain length of time, in this instance a year from the 1st of October, which from present advices a large part of them are very glad to do, we will at once increase our production of this particular color to large proportions, possibly enough to provide for the entire consumption, and the increase of this color will be followed by an increase in other large, important colors under the same arrangement, as quickly as it can be done.

"If we secure this help from American consumers, and reduce our risk by contracting as we have suggested, we believe by the end of the war the business will be so materially developed that the government will see the necessity of continuing the manufacture of our products on a large scale, and then protect us by an increased duty as well as by the so-called anti-dumping clause and the business will then go on under successful conditions.

"I might say in this connection, however, that even at the present high prices, which are about three times the normal prices, the actual cost of dyeing to most hosiery manufacturers is a very small percentage of the cost of their manufactured goods, taking for instance the item of cotton hosiery, where in normal times the dyestuff cost, not including labor or other expenses, would be about $3.00 for one hundred dozen of the average socks, or say three cents per dozen, and even in these abnormal times, with the high cost of colors, the same operation can be done for about five cents per dozen; in other words, even at the present high prices for black the cost of dyeing has only advanced about two cents per dozen, which is an infinitesimal advance to the ultimate consumer who buys a pair of socks, therefore it seems as though manufacturers need only ask a slight advance for their product, which would enable them to pay the higher prices for dyestuffs and continue operations, so insuring consumers of a regular supply of their ordinary materials, socks for instance, at an advance so small that it would not be questioned by anyone.

"These same remarks also apply to the cost of dyeing other materials as well as hosiery, which is an equally small percentage of the value of the material which is dyed, it generally being estimated at about two per cent.

"The point to this whole address is simply the fact that aniline dyes can be manufactured in the United States successfully from American materials, irrespective of European conditions, if American consumers of colors are willing to pay prices which the extra cost of manufacturing under the present conditions, make necessary, and trust to the future to develop the industry to such an extent that they can work under normal conditions in competition with the world. If the consumers are willing to help, then the capital will be forthcoming to develop the manufacture to its utmost capacity, but if they are not willing to do their part, then there is no chance for the manufacture to develop at present to any extent, and the industry will continue to languish until the government comes to the rescue by putting on a protective duty and enacting an anti-dumping clause."

HERMAN A. METZ, who followed Mr. Stone, spoke much along the same line as in his address before the officers of the association at Philadelphia a short time ago when a committee was appointed to confer with the State Department.

The next address was by LINCOLN CROMWELL of New York and was entitled

The Administration and Business Men.

Mr. Cromwell said:

"Fifty years ago this week the American civil war was officially ended. Then began that dark page in our history, the Reconstruction Period. Today we are in another reconstruction period. We are rearranging business in its relation to private and national life.

"Let us consider a moment what are the new powers hanging over this reconstruction period. From the start the President of the United States has had more personal authority than any constitutional monarch in Europe. He was commander-in-chief of the army and navy, commissioning all officers; he nominated the Federal judges and every Federal office-holder from the members of his Cabinet to the customs examiners and the village postmasters. He was expected to suggest legislation and had a veto power equal to anything less than a two-thirds vote in both Houses of Congress. These were great powers in the hands of Washington, Jackson and Lincoln, and were especially feared by the Democratic party with its love for States' rights and local self-government. Yet that very Democratic party has endowed Mr. Wilson with authority never thought of by the earlier presidents. He appoints a Federal Reserve Board with autocratic powers over the national banks, the use of their reserves and the rates of discount. His Secretary of the Treasury and Comptroller of the Currency laid out the Federal reserve districts and named the reserve cities to please themselves. The president appoints the Interstate Commerce Commission, now all-powerful under the Hepburn and Clayton acts. There is practically no appeal from its decisions. It controls railroad property worth $20,000,000,000, employing 1,600,000 people whose yearly wages are a third greater than the national debt. The Interstate Commerce Commission fixes the charges of the express companies, pipe lines and telegraph companies. Its rulings spell success or disaster to the whole country,

and the trusts in their bloodiest days never dreamed of such power for their most experienced captains as we have given to seven men named by the president of the United States for the Interstate Commerce Commission.

"Now we have a third commission, one appointed by the president to see that we do not cheat each other in ways that few of us ever heard about. It is to set up standards of fair dealing and may hale us before the courts for failing to live up to its conception of what is right. But it has much opportunity to be constructive rather than critical, and it is fair to say that the Federal Trade Commission has made a promising beginning and may become of great value in solving our commercial problems.

"Let us see now how its authority, old and new, has been used by this administration. How fairly has it dealt with people in its power, this government of higher standards and the New Freedom? I shall cite three examples, confining myself to admitted facts.

"In 1913 the Interstate Commerce Commission investigated the express companies and published a report that left them without a friend. The companies asserted that the overcharging and other irregularities proved before the commission were the acts of dishonest employes who had been punished as fast as caught, and asked that the whole evidence be published to show that it cleared the companies of any part in the offenses. This the commission refused to do. Then it imposed on the companies a new scale of rates supposed to be the last word in scientific regulation. They promptly drove one of the big companies out of business and in others turned profit into a loss last year of nearly $2,000,000. Meantime Congress was busy with the parcel post. When complaint was made of this government competition, an administration organ said there was 'a touch of humor in the wriggles of the express companies to hold part of their business.' Is it hard to imagine what the president would have said if one of the hated trusts had treated a competitor as the government treated the express companies? We can hear the scream of indignation if the United States Steel Corporation had first charged a competitor with the morals of a pickpocket, had then secured a law obliging that competitor to sell only at a loss, had got part of the business itself by selling still lower and then, indifferent to the competitor's plight, had recouped its own losses out of the public treasury! That is exactly what the Interstate Commerce Commission and the Post Office have done to the express companies. Perhaps someone will say that the public benefit from a cheap parcels post justified the act. But I say that it was a procedure as unfair and dishonest to a legitimate business as any crime under the Clayton act.

"Let us look at another case, that of the Alaska Northern Railroad. It was built by private capital to reach an Alaska coal field. Before the road was completed the coal fields were closed by the government. This last Congress appropriated $35,000,000 for a government railroad to develop these same coal fields and we are just informed with satisfaction that the Alaska Northern has been purchased by the United States for a price less than its physical valuation as estimated by the government's own agents. Has any railroad wrecker been accused of worse than this? Can we imagine Jay Gould showing the poor sense and the bad taste to boast that after first encouraging a road to build he had cut off its only source of profit, and then bought it at less than cost when he alone could throw it business, and it must choose between a total loss and taking what he would give for it! That is what this administration has done to the owners of Alaska Northern. What theories of government ownership can square such action with the eighth commandment? Its advocates seem ready to prosecute our public utilities into involuntary bankruptcy in order to substitute political management for private enterprise.

"The recent history of the Post Office is a struggle with the railroads over their pay for carrying the mails. It is for experts and not for us to say what the service is worth but I am sure that the American sense of fair play resents the efforts of Congress and Department to impose arbitrarily on the roads a scale of payments less than they receive for similar service to the business public. No disguise has been put over this attitude of the administration, in Congress or out of it. Parcel postage is less than express rates. How then does the Parcel Post show a profit of $15,000,000 while the express companies show a loss? The railroad answer is that their services were commandeered to carry the mail at less than half what they had received from the express companies for the same service. It is a serious charge of misuse of arbitrary power. Public officers should be above suspicion of prejudice or favor and should make their public statements so clear that they are beyond chance of misunderstanding or charge of bias. Instead, Mr. Burleson asserts that the roads are "looting" the government and cites figures against the roads which we now learn are for the largest express package at the lowest rate between New York and Chicago and not at all the average charge in a day's business. Misleading statements do not inspire confidence in a Postmaster General. And this is the man who would have the government buy and put in his charge the telegraphs and the telephones. How dangerous is a combination of competing groceries, but how desirable to bring about the most gigantic combination by means fair or foul, if only it can be run by a politician and the public money!

"This administration scorned the counsel of business men in framing its tariff law, warning them away from Washington as if, one and all, they were robber barons. It framed the income tax law in defiance of security experts and nobody knows just yet what it taxes. It pronounced the Federal Reserve Act "a perfect measure," while it was in a form soggy with Bryanism, its notes redeemable in whatever happened to be currency, instead of in gold, and it resisted the amendments which corrected this fault. It defied the warning of commercial bodies everywhere in its struggle to jam through the Ship Purchase Bill, and it passed the Seaman's Bill, which undoes our conventions with twenty foreign countries and creates new obstacles for ship owners. Add to this, while our revenues were rapidly shrinking, it appropriated the record sum of $2,231,000,000 in two years, and asked Congress for $84,000,000 more than it got.

"These are some of the performances of officials who would redeem America from business men. With what promises they came into office! The robbery of a protective tariff was to be exchanged for a condition where everything sold cheaper, but wages were higher. Our factories were to run overtime on exports. Our farmers and merchants were to get money for the asking which was

formerly kept back for friends of the Money Trust. An income tax was to trim the rich and lessen the burden of the poor. We were going to hearten 15,000,000 peons in Mexico by getting them ballots and making them owners of pretty farms and prove ourselves such a model of peace on earth and mercy mild that war the world around would cease to be. I would waste your time by detailing the failure of every item in this program.

"I often wonder from what actual experience Mr. Wilson got his theory that Americans were suffering and practicing the frauds set out in his new laws. He spoke in The New Freedom of the college man's days of wisdom; of his abundant knowledge of business from reports of investigations and magazine articles, as if the standards of a community were to be judged by its criminal records and its muckrakers. I find all business men testifying to the constant bettering of trade ethics and the fewer dishonest bankruptcies and cases of fraud.

"I began by saying that we are in a reconstruction

SECRETARY C. B. CARTER.

period. How long it will last and how it will end depends most on us business men, for the reconstruction concerns us most. We can survive it best by showing patience and good temper. The country wants a rest from legislation and I doubt if any of the new laws except the tariff would be repealed by a Republican Congress. The income tax law may be changed and its collection simplified, but such a tax is likely to remain on the books.

"What can we business men do? We can complete the education of a public opinion which will put fair men in office and bury the bogies which we fear in these radical laws. We can make it as impossible for the president to retain an arrogant or unworthy commissioner as to appoint a crooked or ignorant judge. We can secure the changes needed in the tariff rates by honestly presenting the facts. The war is a prohibitive tariff, but after the war—the deluge.

"American public opinion, once it knows the facts, is the fairest verdict in the world. Let it be right and persistent, and it dictates to the citizen, to Congress, to the President and his commissions, and even to the Supreme Court of the United States. We business men will have in it just the voice that we deserve. In time we should reach it chiefly through the Federal Trade Commission, substituting its expert rulings for the half-baked laws of demagogues eager for publicity. We must personally see that business interests reach it through organizations like this, through the United States Chamber of Commerce and the local chambers of commerce, through the daily press and the trade papers. Through these channels to public opinion we shall prove our just standards and secure their respect. When this stormy time is passed, and pass it must, and measure is taken of those who worked well for a better day, I have faith that the men of business with their training in the give-and-take of commerce and the responsibilities of employer and employee, will stand out among those who have learned best the conditions of American life; and the business world will be found to number its full share of those who fix their horizon beyond the dollars and their hearts on the welfare of the United States."

Then came an interesting paper on

The Value of Permutized Water

for processing yarns, by A. R. CALVO, of New York, who said in part:

"Permutit is the name given by a distinguished scientist of Berlin, Dr. Robert Gans, to an artificial sand which he was first to make.

"Permutit is really an artificial zeolite, which is produced by fusing at very high temperature in a furnace felspar, clay, pearl ash and soda in definite proportions. This product is a greenish glass, which is crushed and then washed with hot water. The finished product is a granular substance like coarse sand which chemically is a sodium albuminate silicate.

"Its value for water softening consists, first, in that the sodium which it contains is exchangeable for any lime or magnesia which may be present in a water filtered through it, and second, that after a given quantity of Permutit has been exhausted of its sodium by the filtration through it of a hard water, the Permutit can be easily and cheaply restored to its original state, regenerated we call it, simply by allowing a solution of ordinary common salt to remain in contact with it for a number of hours.

"In actual textile practice, the filters containing the Permutit are designed of sufficient capacity to deliver one working day's supply. At night the salt solution is run into the filter and when it is washed out in the morning, taking with it the previous day's accumulation of lime and magnesia, the filter is again ready to deliver the normal amount of perfectly softened water.

"The value of it for processing yarns, or for dyeing or washing knit goods in the piece, consists in that while it materially cuts down the cost of production, it markedly improves the quality of the product. Only recently a consulting chemist in Philadelphia made experiments with peroxide bleaching on silk with a natural water, a lime-soda treated water and a Permutized water, and reported to his client, a well-known hosiery manufacturer, that the

best results were obtained with Permutized water."

The reports of special committees and miscellaneous business disposed of President Leippe called upon P. C. WITHERS of the Illinois Knitting Company, to discuss Federal Regulation of the

Hours of Labor for Children

and Women Workers. In response to this request Mr. Withers said in part:

"There are two prominent questions being considered by public opinion and the members of our different state and national legislatures and the other leading officers of the government.

"One is the prohibition question—the regulation of the liquor traffic by law. During this particular week to the members of the convention a discussion of total abstinence from liquor would be "sowing seeds on stony ground" so we'll pass that subject to our Honorable Secretary of State, who makes a specialty of it.

"The other question is the regulation of the hours of labor for children and women workers. You know, we as manufacturers and employers of labor are often pictured as hard task masters who grind out dividends by the abuse of child and woman labor. One of the leading Chicago papers recently had a feature cartoon on its outside page showing a large hopper with a crank attached which was being turned by a fat, bloated male specimen of humanity labeled "manufacturer," and women and children were being driven into this hopper, the manufactured product was coming out at the bottom labeled "Dividends." It was suggested by an employer of labor when he saw the cartoon that if a picture of the proprietor of that paper had been shown at the crank, and the women and children changed to represent newsboys of tender years who cry their wares at all hours of the day and night on the streets of the city of Chicago the cartoon would come nearer telling the truth.

"But it is my opinion that neither picture tells the truth. The object of this picture was to assist the passage of an eight hour law for women workers through the Illinois legislature. It is the old, old story of an attempt to play upon the emotions of people and get them to act through sentiment rather than careful investigation of facts, so that reason may arrive at a conclusion that will do justice to all parties concerned.

"I know it is the wish of every man here today that all the women and children in this land of ours and the whole world for that matter might be healthy, prosperous and happy; we as employers of labor are anxious and willing to do things for our employees that will promote these qualities. It is not only because we are regular men with sympathy for humanity, but because we know from experience that it is a good business proposition to assist in making employees healthy, prosperous and happy.

"If some of the society women who are misled by labor agitators and walking delegates of both sexes, would get a little more first hand information from widowed and deserted mothers who are trying to educate and train their children and keep their families together, they would learn there are many more practical ways of social uplift than the regulation by law of the hours of labor of women and children.

"I want to read you a couple of newspaper articles—not all of them, but parts of them—just facts, conditions, not theories, as to things that are existing in this country today. One of these articles is dated Washington, D. C., April 20th, 'The first Federal census of unemployed has just been made by the Bureau of Labor Statistics. It covers New York City, and shows that nearly half a million people were out of work last winter.' This is a condition, not a theory. Every person who had a job, whether a regular job or an irregular job, was put down as employed. Now, there is a condition. People are out of work; they are struggling to get work, and at the same time laws are being passed that make it hard to get work. Only recently a law of that kind has been passed in Pennsylvania.

"The other article I refer to was in a St. Louis paper. What happened was in this city—Philadelphia. The article is dated May 1st. It is headed, 'I Want Booze.' It tells about one, Kavitsky by name, who had a frail, sick wife and children. He demanded money for a drink. All the money his wife had left was a quarter. 'I want that quarter for booze,' he cried, as he flung her on the floor. There is a picture, and they have no law to regulate a man of that kind, except a little jail-house. This is my idea of regulating that kind of man. A man who will do that just once, ought to be put in an institution where he would be made to work, and every penny above the amount necessary to sustain him should be given to his wife, for her benefit and his children's. He should be kept there until the youngest child is twenty-one years old. That is how to take care of people of that kind. And at that time, if necessary, I would sterilize him so that he would not be able to produce more humanity of the same kind. The world is full of just such people as that, and our laws don't make proper provision for them.

"I want to give a little experience—a personal experience of my own. I wish that some of these social welfare workers were here to hear it, this morning. There is a lot of good done by many of them, but many of them are impractical when it comes to determining what is the best thing for suffering humanity. I went to work in a hosiery mill when I was twelve years, six months and one day old, winding bobbins. I did it simply because my father was a poor mechanic. I was the eldest of five children, and it did me good. It helped make me what I am today. I may not be much, but I can at least earn a living. I worked in this way during the summer vacation. What did I do with the money? I bought a new suit of clothes—I bought school books—and I was in a position where I could go to school looking as well as any other boy there. A boy has a certain amount of personal pride and he doesn't want to be looked down upon by his fellows. That is what I did with my money. This is an actual experience. If I were born today, I wouldn't have that privilege. I would be living in a time when children are not privileged to work for what they want.

"I want to tell of a boy who once worked for me—a boy of 15 years. But he was six feet tall and weighed about 170 pounds. His mother was a fine, highly educated woman, but she had an invalid husband to support—a confirmed invalid who had to be moved in a wheeled chair. I gave that boy work in the factory turning stockings eight hours a day. His mother came to me one evening and said, 'I wish you could give my boy a place where he could earn

more money.' I explained to her that he was under sixteen. If she were willing to swear that he was sixteen, that would relieve me and I could give him a better position where he could work ten hours a day. Of course, she wouldn't do that, but that was the only hope under the existing law. The result was, I was not able to give him work that paid good money. When that boy became sixteen he went to work in an iron foundry, helping to mold car wheels. That's the kind of a boy he was; but when he was fifteen he couldn't even earn an honest boy's wages.

"I believe in having a commission that would investigate each case and decide on its merits. Some people ought not to be allowed to work. They are not strong enough, physically. How old they are is not how to regulate it. It should be, how capable are they—physically and mentally? Are they ready to work?

"I realize that this thing cannot be done by direct legislation of the national government. We ought to have people enough in this country, and ought to be able to afford to investigate each individual case on its own merits. It is a question of mental and physical ability—are they able to do the work? If so, let that boy or girl who wants to work, work, regardless of age. I believe if a father is able and can do it, he should educate his child beyond sixteen years. And I believe in work. I don't believe there is any educator like work.

"Personally I believe in our national government making a careful and thorough investigation of this subject and arranging for its proper supervision. This cannot properly be done by an arbitrary law with a positive statement of just how many hours each employee may work out of each 24-hour day. It is a big question and needs careful consideration from the viewpoint of each industry. A regulation that would be ideal in the hosiery and underwear business would probably be a failure in the canning business where perishable products have to be taken care of during a given period each year.

"The national government cannot make direct regulation as this is the privilege of each separate state government, but the national government can devise a set of regulations in regard to what manufactured products shall enjoy the privilege of interstate commerce, and by this means regulate the condition of children and women workers.

"It is my belief that if this regulation was sane and just to all parties concerned the different state governments would not do anything to seriously interfere or conflict with it and the result would be a uniform condition with which manufacturers in different states would have to comply. It is needless to add that when we get a national government that believes in having the things the American people consume, manufactured in American factories by Americans, we will again become a prosperous, happy American people.

"I am not prepared to give a detailed program of just what regulations should be put in force, as that could only be arrived at after careful investigation by a non-partisan commission. I would suggest that the commission be composed of additional people than merely politicians, labor leaders and social uplift workers who gain their knowledge of humanity by theoretical training. I would want on that commission at least one widow who is trying to provide for a family of small children and one worthy mother of small children who has been deserted by a worthless husband. We would also need one man who was successful in business and possessed a good stock of common sense.

"My idea is based upon a regulation that gives every man, woman and child in this country an equal chance; a regulation that doesn't put it all under one fundamental law, so that an age-limit puts you out of work, whether you are able or not. I believe our national government should take this thing up and regulate it on a condition that should decide the case on its individual merit; not have a hide-bound rule that regulates every one alike. I am going to offer what I consider right, in the shape of a resolution—not something personal, but something of national scope—something on which I believe we can all agree:

"Whereas, Public opinion is at present considering the regulation by law of the hours of labor and working conditions of children and women workers and we believe this

P. C. Withers, the New President.

to be a many sided question that needs careful consideration, therefore be it

"Resolved, that it is the opinion of the National Association of Hosiery and Underwear Manufacturers in convention assembled that all legislation affecting manufacturers who compete with manufacturers in other states should have federal rather than state origin so that manufacturers everywhere may be placed on an equally competitive basis."

The resolution was unanimously adopted.

The report of the nomination committee was then read by Fred. W. Simons and the following

Officers Unanimously Elected.

President, P. C. Withers, Illinois Knitting Company, Mt. Vernon, Ill.

1st vice-president, Edward Blood, Sr., John Blood & Bro., Philadelphia.

2nd vice-president: T. H. Johnston, Knoxville Knitting Mills Co., Knoxville, Tenn.

Treasurer: Robert C. Blood, John Blood & Co., Philadelphia.

Secretary: C. B. Carter, Philadelphia.

Directors: Wm. E. Hall, Shaw Stocking Co., Lowell, Mass. (to succeed himself.); Joseph West, West Bros., Syracuse, N. Y. (to succeed himself.); Joseph Feldenheimer, Roxford Knitting Co., Philadelphia. (to succeed himself.).

The morning session then adjourned.

In the selection of P. C. WITHERS, of Mt. Venron, Ill., as the new president of the association, the nominating committee made a thoroughly wise selection, inasmuch as Mr. Withers is one of the live wires on the registration roll of the active members, has served two terms in the legislature of his state, and has a sterling reputation for honesty of purpose and directness of action which claims the support of his friends and commands the respect of those who may not entirely agree with his views.

During the afternoon section meetings were held by the various sub-associations and then the machinery exhibit was visited until it was time for

The Banquet and Smoker.

Wednesday evening at approximately six o'clock, the exhibition hall was closed, and all the members, associate members and guests made their way to the Parkway Building, at Broad and Cherry streets, where for two hours they were entertained in the banquet hall in the basement. Promptly at 8:30 the vaudeville performance in the main auditorium began, and continued during the better part of the evening.

As usual, souvenirs were presented to each member and guest taking part in the smoker, in this instance consisting of a unique german-silver pocket match box equipped with matches and accompanied by a corncob pipe, a sack of tobacco and cigars. Needless to say, that despite the ventilating arrangements of the main auditorium of the Parkway Building, the air soon became so hazy as to make the members see, as it were, "through a glass darkly." Also, as usual on occasions of this sort, the "Happy Family" once more had the time of their lives.

Thursday Morning Session.

The beautiful sunshiny weather of Thursday morning attracted many members away from the Convention Hall, with the result that when the meeting was called to order at 10:30, the attendance was comparatively small, in proportion to the attendance at the previous sessions.

It was decided to omit the reading of the annual reports of the secretary, treasurer and several committees, and begin at once on the set addresses on the program. First of these was an address by C. C. PARLIN of the Curtis Publishing Co. on

Merchandising Hosiery and Underwear.

Mr. Parlin said in part:

"Men and women differ in their buying. A man in his buying is usually impelled by one of four influences.

1. Convenience. 2. Impulse. 3. Custom. 4. Brand. Price is not listed as a special influence, but it operates to modify the buying under any of the given influences, for man is not disregardful of price.

"Woman's purchases are of two distinct classes, and from the standpoint of a manufacturer, it makes all the difference in the world in merchandising as to which of these two classes he is trying to sell. These two classes we call 'convenience goods' and 'shopping lines.' Convenience goods comprise notions, cottons under 15 cents a yard, stockings for the children, cheap underwear, and in general, the lower end of woman's purchases. An inventory of a suburban dry goods shop will furnish a complete list of convenience goods. These lines are bought under the same influences that affect men: (1) at a convenient store, or (2) by impulse, or (3) at an accustomed place, or (4) by brand. There is little or no comparison of values.

"Shopping lines in general comprise the upper end of woman's purchases—cloaks and suits, carpets, millinery, and all those articles which a woman records on her mental shopping tablet (which never forgets), and of which she defers the purchase until on a trip to her shopping center. In these lines a woman does want to compare values. She wants to go to one store, then to a second, then to a third, and after having seen three stocks, to make her choice, by comparing quality, price and style.

"Hosiery and underwear partake of the characteristics of both convenience goods and shopping lines. The cheaper grades—that is, hosiery of 25 cents and under, and underwear of 50 cents per garment and lower—are convenience goods. They are scattered through a multitude of suburban shops and rural stores and the manufacturer who would secure his maximum market needs the assistance of the jobber.

"The upper lines, that is, hosiery of 50 cents and up, underwear exceeding 50 cents per garment, partake of the nature of shopping lines and the trade in women's lines tends to concentrate into a comparatively small number of cities and into a comparatively small number of stores in those cities and the higher priced the line, the greater the degree of concentration. The manufacturer of higher-priced hosiery and underwear, therefore, will be able with his own salesmen to cover enough stores to reach the great bulk of his market. Now what is the relative importance of the direct sales market and the jobber market? Of course, large stores buy some things from the jobber; many smaller stores buy some things direct. I estimate 48 per cent for direct channels and 52 per cent for jobbing channels. If the manufacturer of a convenience line of hosiery and underwear had, therefore, to take his choice between direct sales and jobber sales, the jobber sales would offer the larger opportunity. But, of 43 per cent that definitely seeks direct sales, nearly half is done by 200 stores, each one of which does over a million dollars. These stores are so insistent on buying direct that the jobber ordinarily cannot sell them, and recognizing this is usually willing that the manufacturer sell them direct.

"Hence, as a merchandising policy for a manufacturer of convenience goods, it seems advantageous to sell direct to the 200 stores that do over a million dollars of business each and use the jobber for the rest of his business.

"In merchandising we are apt to make several mistakes in estimating the relative importance of merchandising. The consumer is king. His whim makes and unmakes merchants, jobbers and manufacturers; whoever wins his confidence has won the race; whoever loses it is lost."

The next address on the program was entitled

Two Snakes in the Business Brain

by STANLEY L. KREBS of Philadelphia. Mr. Krebs said inpart:

"I have heard of your Association for many years, and have often wanted to come in contact with you at one of your conventions. First impressions are important ones, and the first impression I got of this particular convention were your words, "The Happy Family," a title which really sounds the key-note to my subject; for no matter what your job is, your trade, or your profession, the ultimate end is *human happiness*. Happiness does not consist in physical environment. If that were so, how could Bunyon have been happy in Bedford jail? Happiness does not come from things about us; it does not come from your business, nor from your successful sales as manufacturers. That is not it. Happiness is simply and purely a state of mind—that is all it is. You and I are simply states of mind. Yesterday you were sad, today you are glad and tomorrow you may be mad.

"We live in the realm of mind, and in that realm are two much-to-be-dreaded influences—fear and worry. As a student of human nature, I have never found fear present without worry. And, conversely, I have never found worry without fear. Worry is a destroyer; you cannot see the truth when it is present. I would rather have ten minutes of clear-headed thought at my desk than to try to accomplish anything worth while during ten hours of worry. If this demon harrasses you, go out in the air and limber up—shake it off.

"Yes, gentlemen, these are two snakes in the business brain today—fear for the future and worry for the future. I want to prove to you by specific illustration that happiness and unhappiness, except where physical pain is involved, are simply states of mind. Two men go into a restaurant. One is an epicure; he thinks of frogs' legs and raw oysters—he craves them. The other is thinking of them, too, but he is thinking of the dirt and the slime and the filth which formed the environment they came from; he is thinking of the dirt in the middle of the oyster, and it makes him sick just to think of the thing. So there you have one man happy and another man miserable, all over the same thing.

"I knew of an old lady once, who read about a rat having fallen into the hopper of a mill, and thereafter she couldn't eat bread, because of the thought that she would be getting into her system some of the filth which came from that rat. Simply a notion, gentlemen, bred of fear.

"Yes, it is an indisputable truth that one person may be made happy and another person made miserable over the same thing. Psychologically, happiness is purely a state of mind. And both worry and fear are groundless, though they may seem very real to you. And the high intelligence above, looks down smilingly and in pity upon you big boys who allow them to harrass you.

"You say you have reasons for worry. No sir, there are no reasons for worry. There are reasons for work, there are reasons for planning, but there are no reasons for worry. When you worry, you put your worst foot forward, and how can you expect to get very far when you do that?

"Mental states are real things. By mental states, by idealization, we produce realization. Cherish fear and worry, and they will eventually produce the very things that you have dreaded. Allow these two snakes to remain in your mind and they will produce slime and poison, and set in motion an endless train of deteriorating influences; and, consciously or subconsciously, the result will be detrimental to you. Just as surely as two and two make four, these influences, if allowed to nest in your make-up, will set in motion the very forces that produce the things you fear. In other words, our own comes to us. What is the name of him who fears? A coward. And in military tactics, a coward does not even deserve victory. So it is in the battle of business; the coward doesn't deserve to win. He will only stumble if he gives way to fear and worry. That is a law of human nature. "Walk half way up an aisle, then let the thought suddenly come to you that you look awkward, are walking awkwardly. Then try to walk gracefully, try to imitate someone else. Then you are not yourself, and the result is ludicrous. If you would just allow yourself to take care of yourself, without fear that you were walking awkwardly, you would walk all right, would be yourself, would be somebody. You would be different from all the rest of us. Abraham Lincoln was one of the most awkward men who ever lived, but everyone was his friend and loved him for his individuality, despite his awkwardness. If you have a crooked nose, don't try to have it straightened; simply push that nose around through the world, unmindful of mere appearances.

"Once, in teaching a young woman to ride a bicycle, I told her that she could ride as well with one hand on the bar in front of her, as with both hands. She said, 'no, I would fall.' In a moment of forgetfulness she afterward released one hand to adjust her hat. In other words, she had forgotten her fear and so rode along just as well. You see, she could do more than she thought she could. Fear, gentlemen, is simply interference with the development of the best that is in us."

"Years ago, on a neighboring farm, there was a bull dog of unusual ferocity. Everyone was afraid of him. Not so with my grandfather, who had occasion to go where this dog was. Holding in his hands a derby hat, he held it close to his face, covering all except his eyes. Staring unflinchingly at the dog, he slowly and deliberately went step by step toward it. Now this was something new to the animal, and, not knowing what might happen next, he was completely cowed. There is a brief illustration of what fearlessness can do.

"Oh, how many are the victims of fear and worry! Overwork won't kill you; it is the worry that accompanies overwork—that's what does it. It is the mental agitation that is absolutely unnecessary to good work. The fact is, worry and fear interfere with good work. The thing is this: work as you play; make play out of your work. Take a game of billiards, for example. It calls for a lot of work; but you can go at it hour after hour, regardless of the energy it consumes, because you think it is play. And so with rowing a boat; it takes just as much work to do that as it does to turn a grindstone, only, one of the efforts is play, the other is work. We take life not too earnestly, but too seriously. We ought to play in our business, the game of business. You are a slave if you have to be driven to your office instead of attracted to it.

"Viewed from the mental standpoint, when a man worries, he is to a certain extent insane. I shall only have time to discuss the physical side of the subject this morning. That is what is most vital to us just now. There are two great realities, mind and matter. That is all we

know. You cannot name a third thing. The only way you know I have a mind, is through the means of matter; you never saw my mind, but you know that it exists. Sound vibrations upon the tympanum of your ear, tell you that.

"Right here I want to say that I am not in sympathy with Christian Science. It is as old as Plato. I am not saying anything against Mrs. Eddy, or Christian Science practitioners. If I believed that a stone taken from a toad would cure me of a malady, I would buy a dozen toads; and in the same way if I believed that a practitioner could cure me, I would go to him for help. Theories are made by man. Facts are made by God. If you don't believe that matter is real, just sit on a tack—I mean a tack with the business end up. Matter, gentlemen, is as real as mind; only they are separate entities. You cannot destroy matter; you can only change its visible form. The invisible forms of matter are the inspiration of science today. If you think that you can neglect the body you live in, you are very much mistaken. Let the Christian Scientist who thinks to the contrary, try to subsist on fried ideas for breakfast and boiled ideas for dinner. If you think your minds are independent of your bodies, just before you go to bed, eat some lobster salad, pickles, ice cream, and a variety of other things, then go to sleep—if you can. Next morning a host of fears will encamp round about and take possession of you. Why? Simply because the nerves of your stomach are sending up messages to your brain saying, please don't dump a lot of stuff down upon us like that, again. No, you must keep yourselves in good physical condition by taking care of your bodies. Drink a lot of water. We don't drink half enough. We ought to drink three quarts a day. And breathe deeply, plenty of good, pure, fresh air, first taking care to expel all the bad air from the lungs, otherwise you will force poisonous gases into your system instead of out of it.

"Today Europe is trying to commite suicide; the great nations of history, of art, of theology, of science are interlocked in deadly combat. It is a matter of self defense, of existence, for all of them. And, sometimes, we in this country fear and worry for the future. We hear ominous reports of impending clashes between capital and labor here in America, and a long train of ensuing disasters, but let me tell you, gentlemen, industry is in the saddle of civilization here today. My business is that of a lecturer to business organizations. Only recently I jumped from the state of Washington down to Florida. I am coming in constant touch with business organizations all over the country, and I want to say to you that everywhere there is evidence that a wave of prosperity is going to come over this country that will be a surprise to us—a wave that will make America the industrial boss of the whole world."

Following Mr. Krebs on the program, came C. M. RIPLEY of New York, who addressed the Association on "Competition in Electricity." Mr. Ripley had a large blackboard which he used to illustrate his talk, on which a variety of diagrams had been drawn.

Then came the interesting address on

The Canadian Knit Goods Market

and how it is supplied, by E. S. BATES, editor of the *Canadian Textile Journal*, who said, in part:

"There has been an increasing demand in Canada for all classes of knit goods during recent years.

"The variety of goods manufactured is wide and cater to practically every feature of the demand, and the mills are ready to take up any specialty lines that become popular, as has been the case during the past two or three years in the manufacture of sweaters, silk goods, etc. In the case of underwear and other staple goods the demand is steadily increasing. The West is served almost entirely by the Canadian mills and is today one of the biggest features in the knit goods market of the country.

"For a time previous to the outbreak of war there had been a slackening demand for all classes of dry goods owing to the adverse conditions prevalent throughout the country, but in the meantime stocks have been reduced to a very satisfactory level and reports from wholesalers in all parts of the country indicate that the market must soon become active again and in the event of a satisfactory crop next fall it is freely anticipated that the demand will be greater than ever. The knit goods market offers its opportunities to you; conditions are in your favor and the whole situation deserves your closest attention."

At the conclusion of Mr. Bates' address, as the hour was late, it was decided to include the balance of the program, together with the committee reports, omitted from the first part, in the printed story of the convention published in the official organ of the association, *The Knit Goods Bulletin*.

The meeting then adjourned.

An American consul in Great Britain has transmitted a copy of a letter which he has received from a firm in his district which desires to be put in touch with American manufacturers of hosiery, jerseys, sweaters, men's fleecy cotton shirts and pants, ladies' underwear, etc., woven cotton rugs, shades, etc. It is explained that the firm will submit samples, if desired. For address apply to the Bureau of Foreign and Domestic Commerce and refer to file No. 14279.

The 1911 production of sulphuric acid in the United States aggregated 2,210,330 short tons, valued at $17,369,872, as follows: 50 degrees Baume, 1,026,896 tons, value $5,447,958; 60 degrees Baume, 421,165 tons, value $2,624,042; 66 degrees Baume, 751,541 tons, value $9,176,297; other grades, 10,728 tons, value $121,575.

An importing house in South Aberica wishes to establish commercial relations with American manufacturers of textiles. The consul reports that this firm formerly purchased its suppies in Europe. Correspondence may be in English. Those interested should apply to the Bureau of Foreign and Domestic Commerce and refer to file No. 14467.

A pulley to transmit power from your line shaft must be made fast to the shaft. So in the business world in order to accomplish the best results, you and your mill must be made fast to the line shaft of common interest. Read page 247 and act on the suggestions of Messrs. Duncan, Hickman and Emery. Don't be a loose pulley.

There is a redeeming feature about having one big worry; you don't have time to bother with a lot of little worries.—*Atlanta Journal.*

The Exhibits in Machinery Hall

The exhibition of machinery this year was particularly successful, not only from the standpoint of the association, who had listed 95 exhibits, but also from the standpoint of the exhibitors, many of whom did a successful busin[illegible]s during the hours the exhibition hall was open. [illegible]e were some exhibitors of the opinion that it would have been better for them if the Committee of Arrangements had not seen fit to close the exhibition hall during the progress of the business sessions. This is a point, however, on which there was a difference of opinion.

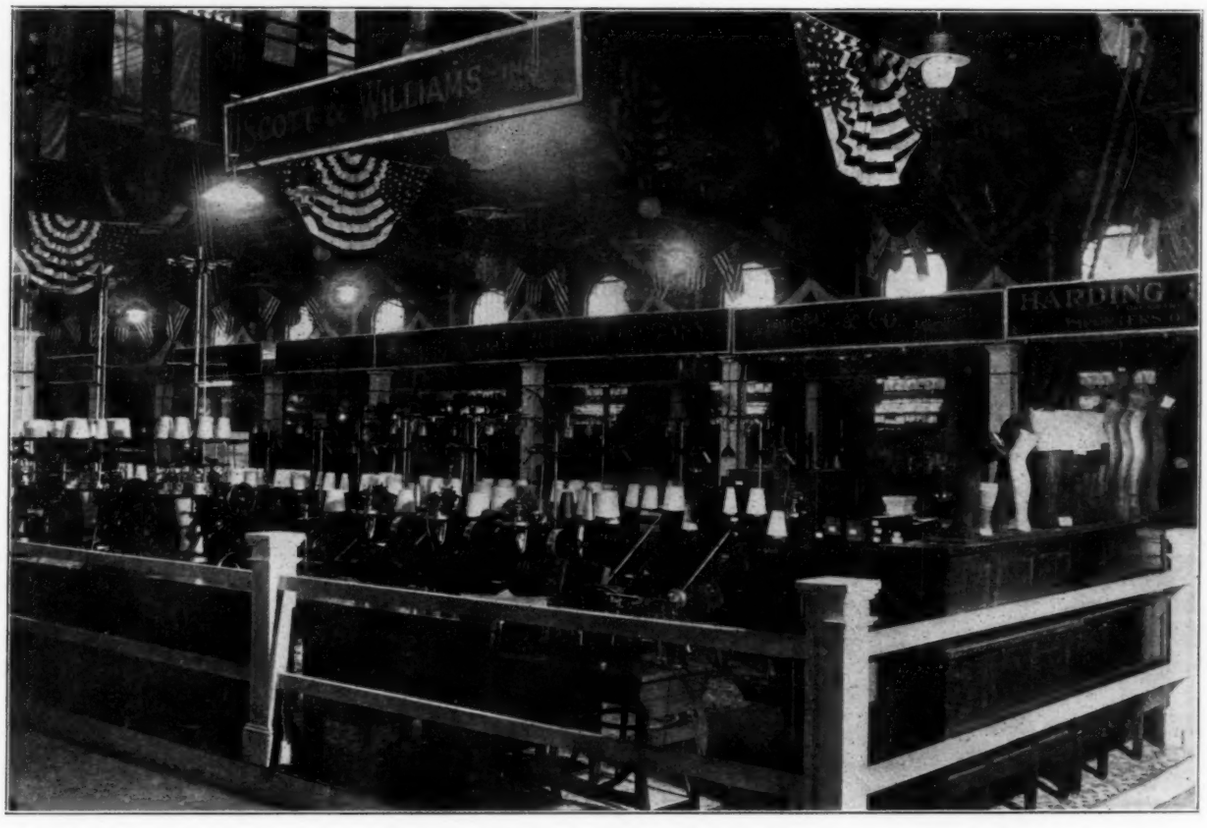
Secretary Carter is to be congratulated on the manner in which he and his assistants handled the details of the Exhibition, which required much thought and not a little labor. It is to be hoped that the governing board of the association, in fixing the dates for next year's convention and exhibition, will bear in mind the fact that of the big exhibition of the Textile Exhibitors' Association, which is scheduled to be held in Boston some time in the spring of 1916, and will so arrange the dates as not to conflict with the other exhibition. This will allow exhibitors desiring to show machinery in both places, to do so.

In the following pages, we are reproducing brief descriptions of a number of the exhibits. The pictures this year were taken with the aid of a new "Violet Ray" lamp, a great advance in flashlight picture making, and used for the first time on this occasion by W. N. JENNINGS, official photographer for the Pennsylvania Railroad.

SCOTT & WILLIAMS, INC., 88 Pearl street, Boston, Mass., made a complete exhibit of their system of hosiery machines of various types and gauges. This company has placed upon the market a most comprehensive system of machines, the different models of which are designated by letters.

The simplest type of machine, known as Model B, is designed to make ladies' hose, men's half hose or misses' hose in the ordinary old-style way, by the transfer of a ribbed top in the case of half hose or misses' hose, or by the sewing of the welt or hem in the case of ladies' hose.

The most comprehensive machines, Models G and F, produce half hose, misses' hose and ladies' hose complete on the one machine, without the use of a ribber or sewing machine, each stocking being dropped from the machine when finished. It is thus for the first time possible to make on one machine of one standard diameter women's, children's and infants' stockings.



SCOTT & WILLIAMS, INCORPORATED.

Of the other types, Model O is designed for making ladies' hose of the ordinary sewed welt type. It, however, starts each stocking on the naked needles by a selvage structure with no waste, and also presses off and drops the article from the machine. At appropriate places it inserts a course of stitches of peculiar formation that positively prevents raveling or drop stitches if the top of the stocking is torn or otherwise injured by the garter.

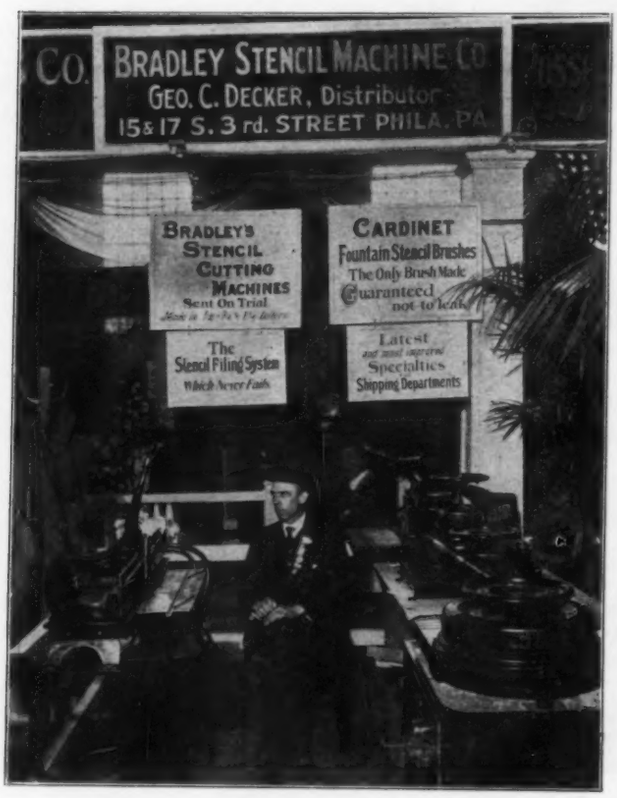
Model Q is the same as Model O excepts that it lacks

the mechanism for making the anti-raveling course, but otherwise it effects all the economies of the Model O machine.

These machines are so designed that at comparatively slight expense any one model may be changed to any other model, so that the purchaser of any one type of machine is not confined to that type, but is in a position to have them altered to other types whenever market conditions make such a course advisable.

These machines may be fitted with attachments for making split sole stockings, mock seam or crowfoot stockings with tipped heels and toes. They may also be fitted with an attachment which automatically cuts out the float of the high-splicing thread, effecting a saving of the waste which this type of stocking ordinarily entails.

They also exhibited some of the latest types of their well-known underwear machines, among which is the machine for making ribbed fleeced garments. These garments have been in great demand for many years, but on account of patent restrictions on the garments the machines have never before been sold in the open market. These restrictions have now been removed and a large increase in the demand is anticipated.



BRADLEY STENCIL MACHINE CO.

BRADLEY STENCIL MACHINE COMPANY were exhibiting their half-inch, three-quarter-inch and one and one-quarter-inch new model stencil cutting machines. They are made in both round and long styles, and are the latest improved equipments for shipping departments. This company also has a four-inch and six-inch drawer stencil filing cabinet with improved indexes for filing stencils in shipping departments.

There is a vast improvement to be seen in these new machines over the first and only stencil cutting machine they placed on the market twelve years ago, but they can actually show they have in use a great many of the first machines they built, being used daily and still in good working order. This will prove the durability, workmanship in the construction of the machines they are installing in shipping departments today. The exhibit was in charge of George C. Decker of Philadelphia, the eastern distributor.

HUNGERFORD & TERRY, INC.

HUNGERFORD & TERRY, Philadelphia, were located at Space No. 89A. At this exhibit was shown a small pressure filter, as an illustration of what a filter looks like. There was also shown an exhibit of knit goods, processed with water from Hungerford & Terry water softeners and filters. A very interesting feature of this exhibit were some yarns and knit goods from a mill which has a well water of 32 degrees of hardness which, however, is rendered exceptionally good by a Hungerford & Terry water softener. Some interesting exhibits of what can be done in the way of mercerized yarns, were also shown. Photographs were displayed of their pressure and gravity filters together with pictures of various filter plants throughout the country installed by this firm. Some of the finest specimens of yarn shown come from the Standard Processing Company of Chattanooga, the Standard Knitting Mills of Brooklyn, the Avalon Knitware Co. of Utica and the Little Falls Mfg. Co. of Little Falls, N. Y. The exhibition was in charge of Churchill Hungerford, Arthur Terry and Ernest Meier.

ABERFOYLE MANUFACTURING COMPANY had Space No. 20. This concern, one of the oldest in the business, had, as usual, a large reception booth for the use and convenience of their friends. It was richly furnished, equipped with telephones and stenographer, with ferns, etc. Many visitors made this place their headquarters during the convention. Representatives in attendance were C. L. Gilliland, treasurer, J. L. Holt, of the Chicago office, T. J.

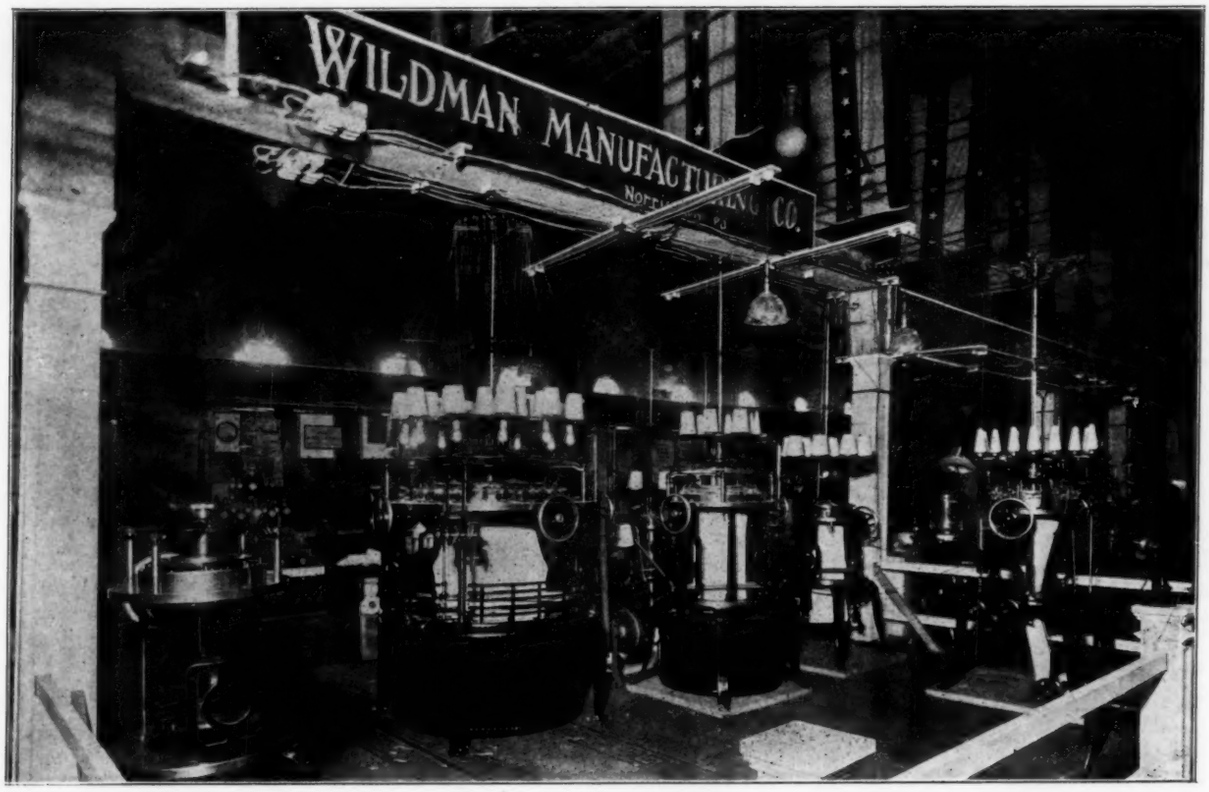
Aberfoyle Manufacturing Company.

Golden, J. H. Thomas, J. Paul Holt, Samuel Rowcroft, A. T. Switzer and P. J. Stromach.

Wildman Manufacturing Company at Space No. 48, which is their regular location at this exhibition, had an interesting exhibit consisting of a 33 inch, 24 feed 2712 needle circular rib automatic body machine for making cardigan and half cardigan, equipped with a 24 end Wildman stop motion of the latest style. A 20 inch circular rib body machine, 14 to 1, eight feeds, 1752 needles equipped with an eight end stop motion. These machines were of the revolving cylinder type.

They were also showing a circular rib stationary cylinder type body machine 19 inches in diameter, 1876 needles, 16 to the inch, 12 feeds, equipped with inserted wall cylinder and dial and the new Wildman stop motion and fabric roll take-up. Also a 13 inch, eight feeds, sinker top machine for making flat work. A 1⅛ inch sinker top machine for making borders and button stays. A 3½ inch French welt machine, 220 needles, for half hose tops and equipped with stoppers, dogless attachment and two speed drive. And a 3¼ inch 78 by 78 machine equipped with a four end stop motion for making infants' fancy half hose tops in colors.

These exhibits were attracting much attention from the



Wildman Manufacturing Company.

J. A. FIRSCHING, UTICA, N. Y.

many visitors who attended the exhibition and the Wildman corner was crowded a large part of the time. The exhibit was in charge of F. B. Wildman; W. H. Allerton, assistant to the superintendent; D. C. Bellis, A. W. Walkden and William McGonigal.

J. A. FIRSCHING, manufacturers of textile machinery at Utica, N. Y., were located at Space No. 31. These people exhibited their 1912 cloth-cutting, folding and winding machine, which cuts, folds and winds in one operation. They also exhibited a neck-marking machine, electrically heated, which marks the neck on the garment. Also one of the latest rotary cuff-cutting machines and a collarette cutting and winding machine which cuts collarettes in any desired width and rolls them up either in spiral form or lengthwise. There was also shown an improved turning and loading machine which turns and loads the cloth in one operation, eliminating the strain on the cloth by giving an even tension. This concern also manufacturers different specialties. They were represented by W. F. Moon. Mr. Firsching was also present and greeting his many friends.

HEMPHILL MANUFACTURING COMPANY, Pawtucket, R. I., occupied Space No. 45, and at this exhibit were shown five of their latest improved automatic "Banner" machines including their extra fine-gauge 280 needle, 3½ inch diam-

HEMPHILL MANUFACTURING CO.

eter machine. This machine is especially adapted for the making of a high grade ladies' hose. They also showed a 220-needle, 3¾ inch diameter machine with their improved no-ravel attachment; their 2½ inch diameter machine with a tipping and stripping attachment for infants' hose; a 220-needle 3½ inch diameter machine for making men's half hose; and their latest improved split foot 176-needle, 3¾ inch diameter machine for men's half hose. This company was represented by John Lawson, Eugene Gunning, Albert Landry, Joseph Seeley and Morris Frost.

The Philadelphia Drying Machinery Co. showed a number of improvements in bleaching, dyeing, drying, singeing and finishing machinery in operation at their exhibit in Space No. 89.

The "Hurricane" rotary circulating machine, which is used not only for bleaching hosiery but also gives splendid results in dyeing, either by the logwood, sulphur or developed systems, excited great interest on the part of hosiery dyers and finishers. By using this machine, the work is accomplished with the use of the least amount of chemicals or dyestuffs, and the various operations of bleaching or dyeing are all completed in this one machine, without it being necessary to take out the goods from the time they are put in until they are finished.

The "Hurricane" automatic singeing machine (Hagar type) which was equipped with an improved, electrical, automatic cutoff, which controlled the gas supply, showed the latest development in regulating the amount of gas necessary, for stockings of various lengths. In other words, by means of this device, precisely the right amount of gas is furnished, regardless of whether the stocking is a full-length ladies' stocking or one of infants' size.

The "Hurricane" fire-proof stocking dryer is built of a double thickness of steel sheets, with air-cell asbestos insulation in between. This machine has been considerably perfected and gives the greatest economy in the use of steam and power in the process of drying.

Hydraulic and Power-Screw presses were shown in various sizes, and designed for pressures ranging from 25 up to 300 tons pressure. These machines are extensively used by the hosiery and underwear manufacturers, and are equipped for either hot or cold finishing of the goods as required.

A number of interesting photographs were exhibited, showing installations of the "Hurricane" automatic drying

Philadelphia Drying Machinery Co.

machines which are extensively used in drying wool and cotton stock, yarn, rags, hair, and an endless variety of materials. The "Hurricane" automatic drying and conditioning machine, which first dries the material, and afterward returns to it a certain amount of humidity, was another object of considerable interest to many manufacturers.

The representatives in attendance were, W. W. Sibson, secretary and treasurer, E. L. Smith, H. Morshead, and C. H. Reumann.

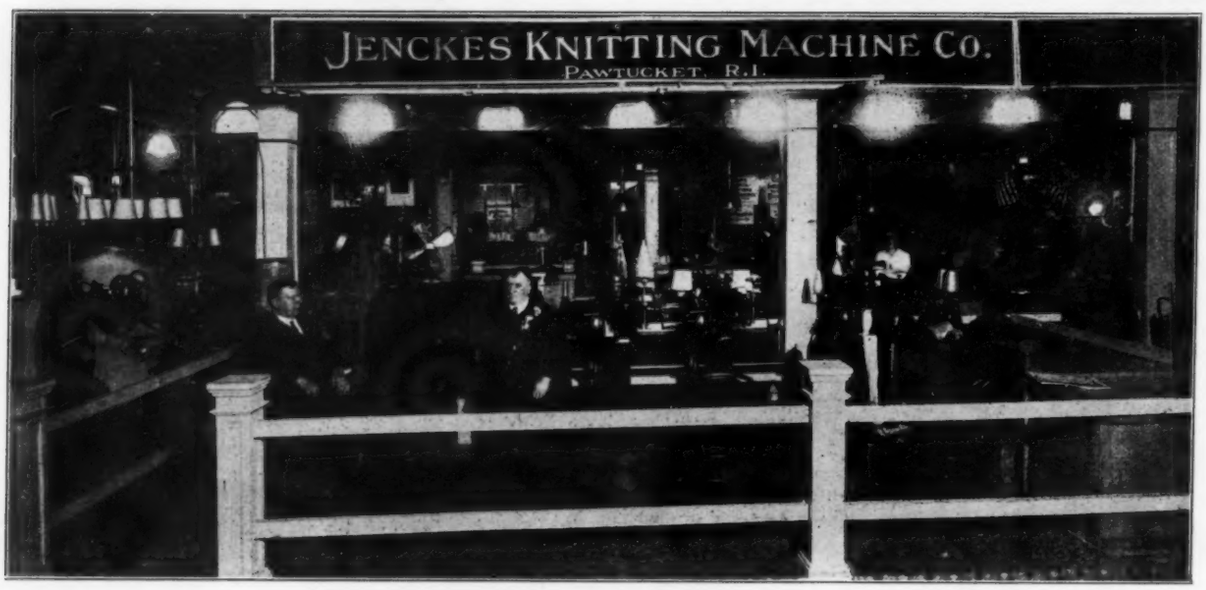
The H. Brinton Company, Philadelphia, had Space No. 42, and the exhibit consisted of three new style automatic hosiery machines of the revolving cylinder type. One 3¼ inch, 234 needles, on ladies' hose. One 3¾ inch machine, 220 needles, on ladies' string work. One 3½ inch machine, 220 needles, on transfer work. One new 3¼ inch

H. BRINTON COMPANY.

French welt ribber, 220 needles, with a dogless attachment and Brinton stop motion. One 3¾ inch machine, single feed automatic ribber, 280 needles, making rib legs for children's hose. Also one 18 inch, 12 feed, 14 cut, plain body machine. The exhibit was in charge of H. S. Horrocks, assisted by L. Bean and G. H. Sloan.

THE JENCKES KNITTING MACHINE CO. of Pawtucket, R. I., were located at Space No. 47. This exhibit contained one 4¼ inch, 72 needle machine with a yarn changer, making a lumberman's sock. A 3¾ inch 160 needle machine, making half hose out of 30/2 yarn, reinforced by another 30/2 yarn. One machine 3¾ inch, with 220 needle cylinder, making a hose with a high spliced heel and double sole. The yarn used in this last machine was 60/2 in the body, reinforced by an 80/2 reinforcing high spliced heel and toe and garter top. The double sole and high spliced ankle used 60/1 yarn mercerized. This company was represented by their former agent, R. J. Morningstar, assisted by R. Beavers.

THE UNION SPECIAL MACHINE CO., Chicago, had an attractive exhibit under the auspices of the Philadelphia office, R. E. Thompson, Jr., the manager, being assisted by the following salesmen of his staff: J. McNelly, W. F. Tosney, George Ide, G. C. Cooper, E. E. Gratsch, J. DeNure and J. Linn.



JENCKES KNITTING MACHINE CO.

A large force of experts was in from various offices throughout the country, including Rube Thompson, who devoted the major portion of his time to the practical demonstration of the tandem interlock machine which made its initial appearance at the exhibit and was in active operation at all times. Another new model exhibited for the first time, Figure Eight machine, Class 4700-B was under the supervision of R. R. Hughes from the New York office.

The Tandem Interlock machine proved to be one of the attractions and miniature garments were seamed on it and given out as souvenirs to many interested visitors.

Among the visiting representatives of the Union Special Machine Co., were Chester McNeill, vice-president, T. Yoshidzume, manager of Union Speciol offices in Japan, Lansing Onderdonk, general eastern manager, and S. R. McNeill, advertising manager.

Philadelphia Textile Machinery Co.

The Philadelphia Textile Machinery Company, of Philadelphia, Pa., had perhaps the greatest departure from old methods, and the most wonderful machine ever developed for the finishing room of hosiery manufacturers, which was shown in space No. 1 at the exhibition.

This remarkable machine is known as the "Proctor" automatic boarding, drying and stripping machine for hosiery. The machine is guaranteed to enable one man to board as many stockings as two men are able to board in the old way. This man will not expend as much energy as either of the other two, and need not be an experienced boarder. The stocking boards never wear out, and it is claimed that no seconds or damaged goods are made during the boarding, drying or stripping operations. The machine absolutely does away with every operation of the boarder, except the actual placing of the stockings on the boards. The man does not have to pick up the boards in order to put stockings on them. He does not have to lay the boards down after the stockings are put on them. He does not have to pick up the twelve boards after he has put the stockings on, nor walk with them under his arm, to the dry box. He does not have to open the dry box door or pull out the drawer. He does not have to place the twelve boards in the drawer and space them. He does not have to take the twelve dried stockings out of the drawer, push the drawer back, close the door and walk back to the table. And lastly, he does not have to strip the stockings from the boards, pile them or count them. The machine performs all of these movements for the man, so he has nothing to do but put the stockings on the boards.

This company also had on exhibit one of the old-style boxes which the new-style machine is replacing. The men in charge of the exhibit were W. H. Rihl, Louis Tiers and Frederick Kershaw, Sales Manager.

The Universal Winding Co., Boston, Mass., showed a machine by which it has perfected an entirely new type of package, applied to one of its regular machines for delivering artificial silk to knitting machines. The adaptation of artificial silk for use in the knitting industry has necessitated the construction of a machine for winding which is quite distinct from the general type of machine. Artificial silk requires careful and delicate treatment and cannot be subjected to the ordinary tensions as applied to cotton and pure silk. The machines shown attracted much attention. The delivery to knitting machines is claimed to be as near perfection as possible, and with perfect tension control. The company also showed a unit of its regular folding machine equipped for winding very fine splicing and reinforcing yarn. The rapid growth of light silk and artificial silk stockings necessitates the extension of the reinforcing throughout the sole of the stocking, and this creates a demand for a package containing as much yarn as can properly be applied on the knitting machine, which requirement was fully met by the machine on exhibition. A fine line of samples illustrating the various applications of the winding machine was also shown. Frederick H. Bishop, secretary of the company, from Boston, and Frank J. Quinn, of the Philadelphia office, attended.

The Bleaching of Textiles is fundamental. If the bleaching is not done right, neither the whites nor the delicate dyeings will be right. It has been recognized by all authorities that many of the old-time bleaches were in the nature of makeshifts, awaiting a time when they could be relegated to the scrap heap and something more reasonable adopted, such as would harmonize with the nature of the fibre.

It is no longer a question of producing a white which will remain white only until the goods are sold and will then quickly yellow-up; or, of giving artificial strength to the damaged fibre by finishing processes which prove their deceit after the first laundrying. What the public now expects are white goods that remain white and that show undiminished strength and wearing qualities. How can anyone in the long run hope to compete if his bleached goods do not come up to these requirements?

The exhibit of peroxide-bleached goods at the Hosiery and Knit Goods Convention in Philadelphia, by the Roessler & Hasslacher Chemical Company of New York was, therefore, of much interest to the trade as indicating the possibilities of this method. The representatives present were George A. Bode, C. C. Harding, Robert A. Carter and George R. Fairbairn.

Roessler & Hasslacher Chemical Co.

Jacques, Wolf & Company occupied Space No. 5. This exhibit consisted of manufacturing specialties for the textile trades. Their best known products are Monopole Oil, Bensapol, Boil-off oil and Levuline. Monopole oil is well known as an extremely useful product in dyeing and finishing material made from cotton, wool and silk. It has few equals as a softener. Bensapol is a scouring agent *"par excellence"* and is used by the leading woolen manufacturers. Boil-off oil is a substitute for soap in the degumming of silk. Besides these products, this company, who are located at Passaic, N. J., manufacture a series of other well established products for the finishing of all kinds of textiles. The exhibit was in charge of Dr. Alfred Pfister, Andrew Martin and Clarence Hessling.

The American Laundry Machinery Co., Cincinnati, O., had on exhibition in operation one of its large automatic steam underwear presses, which is being used by many of the most prominent mills in the country. This machine, which is operated by one movement of the treadle and is under the complete control of the operator, attracted considerable attention. There was also shown one of its foot power machines, which does away with the burning of gas and its disagreeable features. This is so light that it may be operated by a girl. Another feature was an overdriven extractor which had a number of novel points of construction, such as the feature of swinging from a universal joint, thus minimizing the vibrations. This extractor does not require any special foundation. The motor driven machine had many newly devised electrically equipped details. A. L. Stanley, from Cincinnati, and W. D. Reamer, from New York, were in charge of the exhibit at the convention.

Jacques Wolf & Company.

The Charles Bond Company, in Space No. 10, are the Philadelphia agents for the "S. K. F." Ball Bearing Co. The exhibit consisted of running shafts, mounted in such a way as to show the aligning features of the bearing. This was done by means of a bearing mounted on a lever, so that the running shaft could be deflected, showing that the internal friction of the bearing remains the

NYE & TREDICK CO.

MANUFACTURERS OF

Circular Rib

Knitting Machinery

FOR

Underwear and Hosiery

Office and Show Rooms
718-720 Cherry St.,
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S. K. F. BALL BEARING CO.

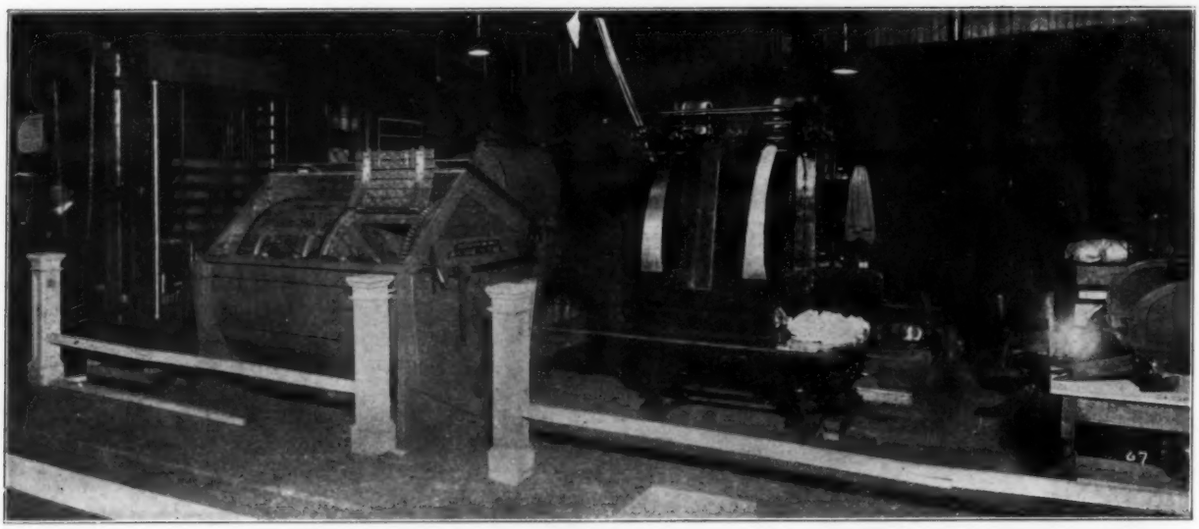
same when the shafts are deflected through the belt-pull, or settlement of building. This exhibit was belted up with one-quarter inch round belting, which brought out the anti-friction properties of the bearings very strikingly. One of the bearings, which was running with the end-caps removed, showing the end-cap construction of the rolling structure and also demonstrating the oil tight property of the bearing, as with both caps removed there was no oil thrown out by the bearing. The saving in power, shown by tests on these hangers is considerable—it being claimed that fifty per cent. of the total power was a conservative estimate.

The Charles Bond Co. also represents the American Pulley Co. The exhibit was in charge of Charles B. Cowdrick, Mr. Mac Fern and Mr. Martin. The "S. K. F." Co. was represented by H. Dunning and A. V. Farr, publicity manager. The American Pulley Co.'s representative was J. L. Brown.

H. A. JAMES & CO., INC., of 315 Fourth avenue, New York City, occupied their usual space at the convention. Hosiery and underwear manufacturers found their exhibit of cotton yarns especially interesting. This well-known firm specializes in high-grade knitting yarns. Their mills are spinning practically all counts of interest to knitters in both combed and carded peelers, as well as sea island and Egyptian staple. Here also those special yarns used for sewing and edging of underwear were to be found.

Mr. James was in charge at this booth.

SMITH, DRUM & CO., "Makers of the Best," had an interesting and impressive exhibit which was located in space No. 67, and which consisted of one rotary singeing machine, fitted with their automatic gas controller, for which a patent has been recently issued; one floating thread cutter, which has been adopted in many hosiery mills; one patented rotary circulating dyeing machine, which is considered by many to be the best machine for dyeing natural



SMITH, DRUM & COMPANY.

or artificial silk hosiery; one of their improved heavy screw power hosiery presses; and one rotary machine of a new type, that can be used for chroming, washing or dyeing.

Smith, Drum & Co. recently removed to their new factory building at Alleghaney Avenue below Fifth Street, Philadelphia, where they are thoroughly equipped to produce the same high grade machinery which has made for them the reputation they now bear. The exhibit was in charge of R. P. Smith and George E. Drum, of the firm, assisted by James Skitt and Matthew MeManus.

MERROW MACHINE COMPANY, Hartford, Conn., manufacturers of overedging, overseaming and shell stitch machines, who have displayed at the exposition since it first began, were this year occupying Space No. 46. This exhibit contained one style 60-S machine for welting ladies' hose. One style 60-U machine for sewing or toe-closing ladies' and gentlemen's hose and half-hose. A special machine for seaming underwear. One style B. D. for selvedged edge seaming on sweaters. A style 60-D machine, three-thread, for finishing cuffs of underwear. One style 60-H.D. for hemming underwear. One style 60-A.D.S.S. machine for heavy sweater work. One style 35-F machine for finishing ladies' underwear. And one style 22-F.J. machine for finishing blankets and quilts. The company was represented by E. H. Allen, J. V. Tolan, William Longley, Perry McMahon and Miss Mary Gainey.

MERROW MACHINE COMPANY.

JOHN W. HEPWORTH & Co., of Lehigh avenue and Mascher street, Philadelphia, exhibited their well-known single stitch looper with patented two-thread elastic stitch attachment. Also their new model two-thread elastic stitch looper. Hepworth & Co. are the oldest manufacturers of looping machines in this country, the single stitch looper having been placed on the market over thirty years ago, and it is but a few months since they received a looper back to make it a finer gauge that had been in continuous use for thirty years and was said to be running good as when new when it was taken off the bench to have the gauge changed. One of the features of this two-thread looper is that it makes a flat seam. The seam is flat when it leaves the machine, and when dyed and boarded is almost invisible. Mr.

Circular Rib Knitting Machinery

PRODUCTS

Underwear, Sweaters, Cuffs with Cut Welt, Selvage, or French Welt, Mantles, Collarettes, Toques, Golf Caps, Hosiery Tops, Skirts, Borders, Corset Covers, Button Stays, Mittens, Bandages.

FEATURES

Rectangular Slots, Hardened at Bottom, Sectional Caps and Cam Rings, Hardened and Ground surfaces, Sensitive Take-Ups, Two Speed Drive, Dogless Attachment, Positive Pattern Mechanism, Needle Guard and Protector, Automatic Stop Motions, Electric Cloth Cutters.

Characteristics

The characteristics of a knitting machine, like those of an individual, are determined by its origin and history; just as knowledge of the individual's family, schooling, and early life are desirable for the formation of an idea of his characteristics, so knowledge of the plant, personnel and ideals involved in the construction of the knitting machine are necessary for an understanding of its merits. Investigate the origin of our knitting machinery.

Wildman Mfg. Co.

Established 1889 **NORRISTOWN, PENN.**

TOLHURST MACHINE WORKS.

Hepworth was in personal charge of the exhibit.

TOLHURST MACHINE WORKS, the well known Troy, N. Y., manufacturers of hydro-extractors, occupied Space No. 10. At this exhibit was shown their standard 40 inch self-balancing extractor, driven by motor. This machine has long been recognized in the hosiery and underwear world as one of the safest, most reliable and most economical extractors on the market. The principal feature of the machine lies in its flexible bearings, which eliminate the constant wear prevailing in all rigid bearing machines. The self-balancing feature is obtained by controlling the forces of nature, which are constant and neverfailing.

The machine was equipped with the all-copper type of basket, having a bronze top ring, a copper side sheet and copper on the basket bottom coated with tin. This kind of basket has been found to be the best for the bleaching or dyeing of delicate colors and the handling of work that must necessarily be kept clean.

Another notable feature of the Tolhurst extractor was the adjustable idlers, which permit of a change of drive from, say, motor to belt, or engine or from floor to ceiling. The exhibition extractor was fitted up with safety guard and with all the latest improvements that the Tolhurst Machine Works have devised.

The exhibit was in charge of F. A. Tolhurst, E. W. Vincent and David Patton.

DIAMOND STATE FIBRE COMPANY, of Bridgeport, Pa., had an interesting exhibit at Space No. 36. The display consisted of vulcanized fibre receptacles of all kinds. This company has made a particular study of fibre receptacles for twenty-five years. Their line includes every conceivable form of can, basket, barrel, car, truck, tray, box and other fibre specialties for use in mills or warehouses. They also have a complete line of fibre truck wheels which are far superior to rubber, being more durable and less expensive. This concern exhibited a line of press-boards adapted to use in hosiery and knit goods mills; also a line of fibre gears. The exhibit was in charge of the Philadelphia representative, Edgar O. Oeters, assisted by O. P. Oeters and F. C. Moras. W. H. Taylor, the sales manager, was also in attendance.

UNIFORM DYEING MACHINE COMPANY exhibited in reduced size their circular type of machine for bleaching and dyeing.

This machine was motor-driven and loaded with hosiery in the gray. One end of the machine was equipped with glass in order that those interested might study the action of the circulating liquid upon the stock within. This also afforded an opportunity to study the course of the liquid when reversing the flow.

The object of this exhibit was to dissipate elusions and unfounded theories and show that by means of the liquid distributor all the stock is exposed to the same flow of liquor and receives the same impregnation throughout.

In reduced size the Hussong Dyeing Machine, manufactured by the same company, was also exhibited. This machine was constructed in part of glass, affording the same opportunity for scrutiny and study as with the Uniform machine.

The Hussong machine was of the yarn dyeing type, and was filled with skeins. The skeins being suspended from the customary rack, it was most interesting to those interested in work of this character to note the movement upward or downward of the mass, as a whole, with the reversing of the circulation.

By this demonstration it was shown the skeins do not

DIAMOND STATE FIBRE CO.

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Builders of
CIRCULAR
Rib Knitting Machinery

For Knitting the Latest Style Fabrics FOR

Underwear, Sweaters
Toques, Cardigan
Jackets, Borders, Etc.
Also Builders of

Napping Machines

The Stafford and Holt Pineapple Stitch Machine is the Latest

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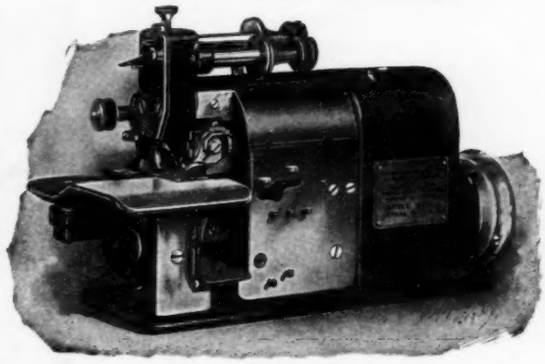
Little Falls, New York

THE MERROW

High Speed Overseaming, Overedging and Shell Stitch Machines



Our Class 60 Machines
For Trimming and Overseaming in one operation produce the strongest seams with the greatest economy.
USE STYLE 60S for welting Stockings, blind stitch.
USE STYLE 60HD for hemming bottoms of Underwear.
USE STYLE 17B or 22 for Bed Blankets.
STYLE 18 is for Horse Blankets.

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THE MERROW MACHINE CO.

28 Laurel Street, HARTFORD, CONN.

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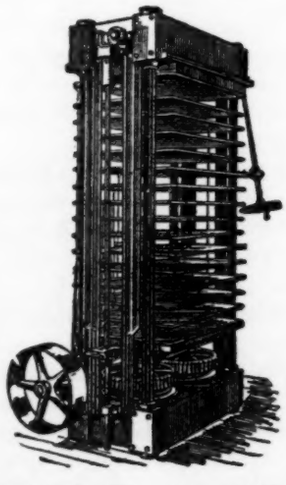
1019 E. Baltimore St., Baltimore, Md.



RELIANCE

Hot Plate Screw Press

FOR

Hosiery and Underwear

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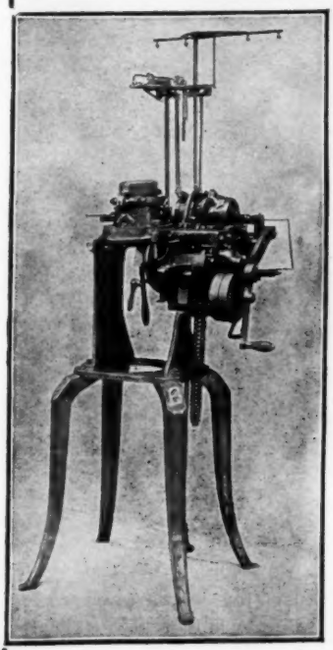
Reliance Machine Works,

FRANKFORD, PHILA.

BOSS Full Automatic KNITTER



It will make the neatest, most uniform and most perfect work, and is the most profitable of any knitter on the market.

It has the simplest Automatic Splicer in the world and never causes trouble. All parts are interchangeable. Compact and strongly built. Runs easily and breaks very few needles, seldom if ever requiring repairs.

So simple that an unskilled operator can learn to run it in a day.

The Boss Knitter means more production for the money than any other machine. Investigate.

Send for Particulars.

Boss Knitting Machine Works

Cor. Elm and Reed Sts., READING, PA.

intermingle, that they do not become entangled one with another, illustrating the excellent winding condition after dyeing or bleaching.

William McK. Morris, J. H. Thompson, A. R. Heritage and W. J. McElmoyl were in charge.

The exhibit of Paxton & O'Neill, of Philadelphia, was located in space 73 where they were showing two new revolving cylinder machines for ladies' or half hose. These machines were full automatic and equipped with five fingered yarn changers and plaiters. These machines are for making ladies' hose with garter top; no ravel; silk, plaited or mercerized leg; high splice, double sole with advanced toe; or with linen or mercerized heel and toe. The exhibit was in charge of Edward Jackson.

Barber-Colman Company, of Rockford, Illinois, occupied Space No. 21 and were exhibiting their well known knotter, for spooling and winding; also the Model "K" warp tying machine which is designed for tying-in warps back of the loom, and which takes the place of the end-twister, or tyer. This machine is particularly well adapted for Jacquard work and has a capacity of from 2,000 to 4,000 ends per hour, depending upon the class of work being handled. The exhibit was in charge of R. E. McCausland, Rockford, Ill., Field Manager; assisted by L. G. Goodrich, Manager of the New England office at Boston; E. H. Bacon, Superintendent of Installation, Boston; and J. H. Spencer, Southern Manager, Greenville, S. C.

Barber Colman Company.

The Torsion Balance Company, 92 Reade street, New York, exhibited a line of textile scales. One type gave, without calculation, the count of cotton, worsted and woolen yarns; another type is used for determining the number of yards to the pound of cotton cloth, regardless of width, and for woolen cloth the actual weight in ounces or grammes for any width goods For general use, they showed their style No. 5020 with a graduated beam.

The Tompkins Brothers Co., Troy, N. Y., had in operation three machines. One of these was operating on a very fine-gauge balbriggan fabric, a 40-gauge, which is said to be the finest in commercial operation in this country. Another was operating on standard fleece-lined underwear, which is capable of making the fabric which has been so much in demand by the European countries since the outbreak of the war. The third machine was operating making sweaters. It is possible to manufacture a fine, medium and coarse gauge on the same machine, and the machine was changed each day so as to illustrate this feature and demonstrate the idea. There was also a complete line of fabrics and garments shown, illustrating the very broad range of materials which can be manufactured successfully on both the spring and latch-needle machines made by this firm. These were chiefly shown in finished garments, with which the trade is more familiar. F. W. J. McKibbin and W. A. Ingalls had this exhibit in charge.

Paxton & O'Neill.

Chas. J. Webb & Co. demonstrated in Space No. 2 the superior knitting qualities of their Necronsett yarns for both hosiery and underwear. The demand from their trade had made it necessary that they should complete their line with a combed peeler yarn in numbers from 16's to 30's, and after most careful consideration of a number of yarns, they selected the Necronsett yarn, both on account of its exceptional quality, which will, they claim, reduce the number of holes usually cut at least 50 per cent, and the care used in its manufacture, while their close connection with the mill also not only permits them to assure the most critical trade that they can meet their requirements, but that the quality will be maintained, which is so essential to users of high-grade combed peeler yarns.

The United States Hoffman Co. had an extensive exhibit at Space No. 68, of the products of their factory at Syracuse, N. Y., where they manufacture pressing machines for hosiery and underwear. This exhibit created a great deal of attention at the convention. Their machines were in constant operation. The general concensus of opinion was that the direct application of steam to the above-mentioned garments produced a very much better finish than could be obtained by any other method of pressing. In conversation with a number of manufacturers,

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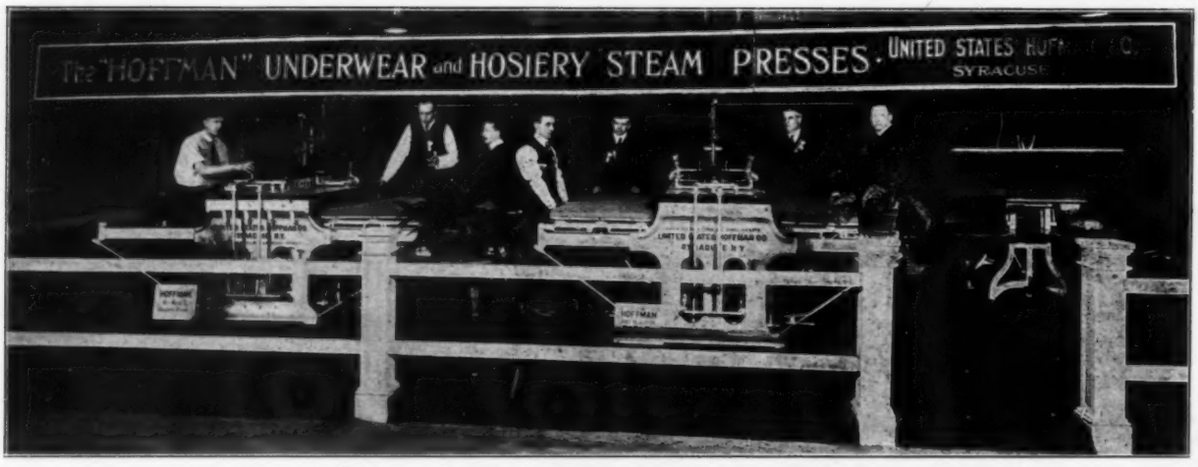

U. S. HOFFMAN COMPANY.

they found that the trade demands this class of finish and is willing to pay a better price to secure it, although the material and workmanship of the goods themselves may be no better. At the booth of the Hoffman Co. they had on exhibition their "L" hosiery machine, triple "F" press and the smaller machine for the pressing of sweaters. P. Edward Geldhoff was in charge of the exhibit. He reports, after a three months trip in the West, that he found the trade in excellent condition. Also in attendance were Charles Ryan, John Scarborough, L. J. Reith, T. R. Hudson and E. C. Moore.

THE AMERICAN TYPE FOUNDERS CO. had an instructive exhibit of wire stitching machines including a new model Textile Stitcher of the well known "Boston" type, which was unique in principle and action. A "Boston" automatic paper fastener for the office was shown. Also the "Boston" staple binder of the pedestal type. All these machines are made to use the new *pointed staple,* which prevents the cutting or splitting of threads in textile work.

Unfortunately this exhibit was late in securing space and being located in an obscure corner did not receive the attention it deserved. The exhibit was in charge of H. L. Chase of the New York office, assisted by Mr. Bickford from the factory.

The New Jersey Textile Wire Stitching Machine was exhibited in Space No. 23 by J. L. Shoemaker & Co., Philadelphia.

The points of the staple are so sharpened that the most delicate fabric will not be torn and the staples can be driven so that the legs will be clinched either on the inside or outside of the stocking; that is, the label can be attached to the inside of a single stocking or through the pair.

THE STANDARD MACHINE CO., Philadelphia, was exhibiting a 300-needle, 3¾-inch cylinder knitting machine which was making ladies' hose with a garter top, double sole and high spliced ankle. This machine is the finest-gauge latch needle machine on the market today. There was also exhibited a 150-needle, 3½-inch footing machine and a 220-needle half hose machine which was making half hose with advanced toe, reinforced top and high spliced heel and double sole. All of these machines were of the latest "G" type and are said to be the only hosiery machines known running with a cam cylinder inside of the needle cylinder, thus allowing the machine to run at the very highest possible rate of speed with a maximum production. The exhibit was in charge of Jacob Bauer and Chas. L. Schoneman; the latter for many years has been representing this company in Central Pennsylvania and the West, and has recently taken over the Southern territory, succeeding the late Peter R. Rahm. The mechanical end of the exhibit was under the direction of Louis Unruh. Harry A. Houseman, president of the company, together with his son, Harold, were also visitors during the convention.

THE SAUQUOIT SPINNING CO., of Capron, N. Y., maintained a branch office in the Convention Hall, at Space No. 3. General Manager William H. Merriman was in attendance throughout the week and ready at all times to welcome old friends and form new acquaintances.. Samuel C. Hoffman, the Philadelphia representative, and H. B. Robie, of the New York office, were also on hand.

A machine was exhibited by the R. G. Jennings Yarn Cleaning Machine Co., of Elmira, N. Y., that is the result of five years work and experience of the inventor. Notwithstanding improved picking and carding machinery, carded yarns and some low grade combed yarns contain more or less specks, lumps and dirt that detract from the appearance of the finished goods, and in the case of knit goods, are often responsible for broken needles. The Jennings's cleaning machine removes all specks and lumps that protrude from the yarn without injuring it in any way. The advantages claimed for the machine are that it enables the spinner to use a lower grade of cotton; that carded yarn cleaned on the machine can be substituted for the ordinary cheap grades of combed and double carded yarns, and will produce few seconds on the knitting machine; the cleaned yarn can be used in cloth to be dyed Egyptian, khaki or any other color without preliminary bleaching, as there are no specks in it to be bleached out; by eliminating bleaching the natural yarn is left on the fibers so that the cloth has a better feel, better appearance, and wears better; the cloth made from cleaned yarn is also softer, smoother and holds its skein better when pressed than cloth made from ordinary yarns.

THE BICKING PAPER PRESS COMPANY, of Philadelphia, exhibited a line of waste baling machines for all kinds of waste. They have installed a number of these machines during the last year in textile mills, and the results have been very satisfactory. The machines are made of steel, of substantial weight and quality, and produce a very solid and compact bale with very little labor required for operation.

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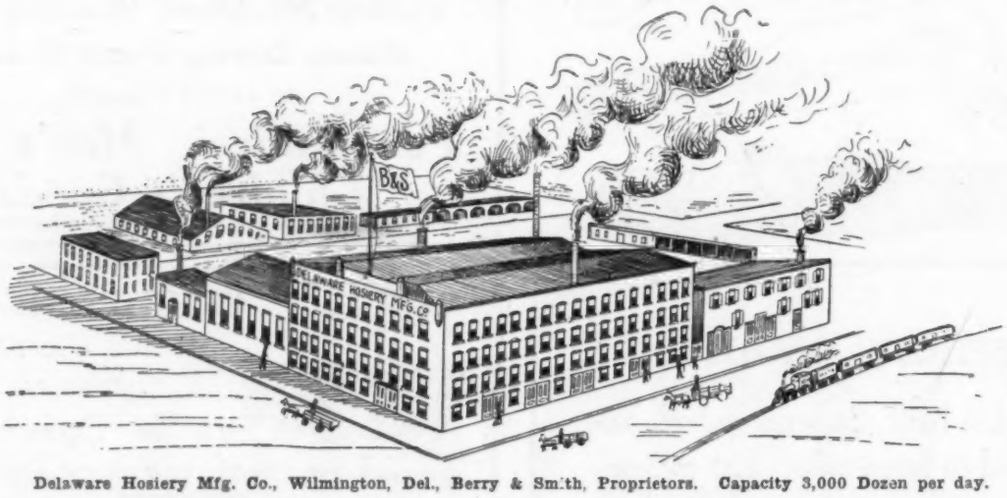

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